

DRAFT

**CITY OF HERCULES
GENERAL PLAN LAND USE
AND CIRCULATION ELEMENTS UPDATE
AND REDEVELOPMENT PLAN
AMENDMENTS
Environmental Impact Report**

February 3, 1995

Prepared for:
The City of Hercules, California

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**Environmental
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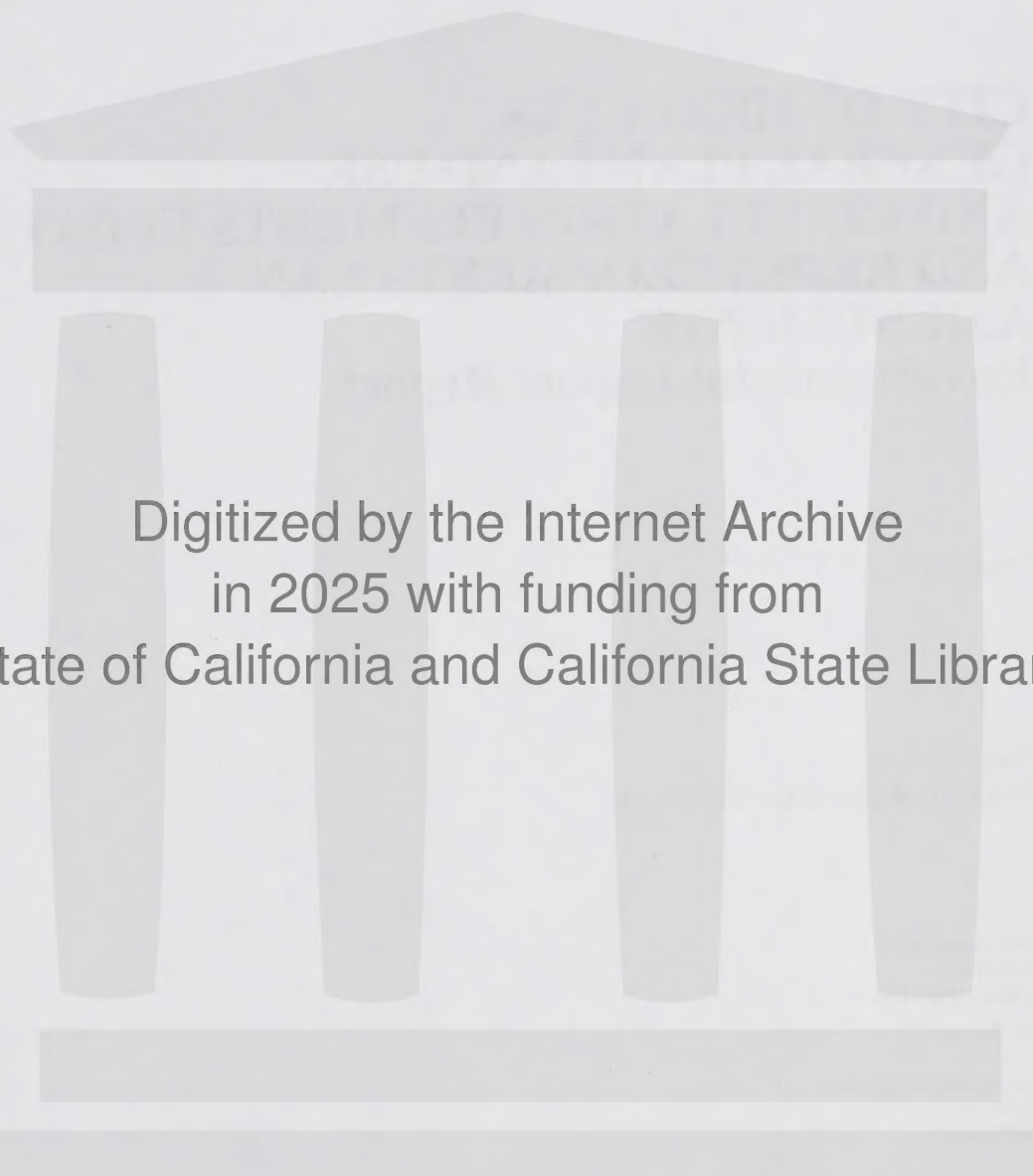
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HERCULES LAND USE AND CIRCULATION ELEMENTS UPDATE AND REDEVELOPMENT PLAN AMENDMENTS DRAFT ENVIRONMENTAL IMPACT REPORT

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I. INTRODUCTION

A. PROJECT OVERVIEW

The purpose of this Environmental Impact Report (EIR) is to provide an environmental analysis of updates to the Land Use and Circulation Elements of the Hercules *General Plan*. The City of Hercules proposes an update to its Land Use Element based in part on input and recommendations from a local citizens' "Community Panel." The proposed project includes new land use designations for 24 properties. Constraints to development of 14 of the parcels were previously evaluated in the *Hercules Master Environmental Assessment* (MEA) (City of Hercules, 1991). The Community Panel evaluated the 14 parcels addressed in the MEA and made recommendations for land use designations on them. The City's staff has also revised the land use designations of 10 smaller properties in the vicinity of Interstate 80, State Route 4 and San Pablo Avenue that were not discussed in the MEA. Some of the properties proposed for new designations are partially developed with the recommended land uses. Redesignation of land uses for the 24 parcels could result in development of up to about 5.0 million square feet of commercial and industrial uses, and approximately 3,800 new multi-family residences, based on typical development densities identified in the proposed Land Use Element.

The Circulation Element would be updated at the same time as the Land Use Element, creating an opportunity for a combined environmental review that will lead to a more useful EIR. Impact projections assume build-out of the 24 properties at the typical land use densities by the year 2010. The Element's impact analysis incorporates data from Contra Costa County's West County Traffic Model and the Association of Bay Area Governments (ABAG) demographic and employment projections. The draft Circulation Element recommends transportation improvements that generally would not lead to substantial changes in the existing street system. With implementation of the Land Use Element Update, streets would be needed to serve the currently undeveloped properties west of San Pablo Avenue (south of the North Shore Business Park). The draft Circulation Element identifies a conceptual alignment for new roadways west of San Pablo Avenue, pending submittal to the City of development plans for the affected properties. The draft Circulation Element includes existing plans for upgrading State Route 4 (SR4) to freeway standards between Interstate 80 and Cummings Skyway and a new local street that would provide access between the proposed SR 4 freeway and the residential neighborhoods of Refugio Valley.

In addition to the Land Use and Circulation Elements, the project includes updating the Redevelopment Plan for the Dynamite Redevelopment Project, administered by the Hercules Redevelopment Agency. The Dynamite Redevelopment Project, created in 1984, encompasses all or parts of about half of the 24 parcels, including the larger parcels west of San Pablo Avenue. As part of the project, the Redevelopment Plan would be amended to reflect changes in the Land Use Element. The Dynamite Redevelopment Project Area is shown in Figure III.2 in Chapter III, Project Description. The Redevelopment Plan is discussed further in Section IV.A., Land Use, Zoning and Plans.

B. RELEVANT STATE REQUIREMENTS

GENERAL PLAN

California Government Code Section 65300 requires every city and county to prepare and adopt a "comprehensive, long-term general plan for the physical development of the community" (State of California, 1990). Conceptually and legally, the general plan guides the exercise of city and county police powers through land use regulation and the exercise of corporate power through provision of capital facilities. Government Code section 65302 states that the general plan shall consist of a statement of development policies and shall include an exposition of objectives, principles, standards, and plan proposals. The plan must include, at a minimum, the following elements: land use, circulation, housing, conservation, open space, noise, and safety. In addition to the state-mandated elements, the Hercules *General Plan* includes an Economic Development Element and a Growth Management Element. The City does not propose changes to elements of its *General Plan* other than the updates to the Land Use and Circulation Elements.

ENVIRONMENTAL REVIEW

The adoption or amendment of a general plan, or element of a general plan, constitutes a project for the purposes of the California Environmental Quality Act (CEQA) and State CEQA *Guidelines*. If it is determined that any aspect of the proposed general plan document or amendment, either individually or cumulatively, would cause a significant effect on the environment, an environmental impact report (EIR) must be prepared. The City of Hercules has determined that this EIR is required for the proposed Land Use and Circulation Elements updates.

C. AUTHORITY AND SCOPE OF THE EIR

This EIR has been prepared as a Program EIR, which may be prepared for a project characterized as a series of actions that involve the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program. (CEQA *Guidelines*, Section 15146(b))

This EIR identifies general areas of environmental sensitivity and the potential general, cumulative effects of the proposed Land Use and Circulation Elements (based on the projected buildout of Hercules in the year 2010). The EIR does not evaluate the impacts of potential development on a project-specific level; specific development proposed after adoption of the updated *General Plan* Elements could be subject to subsequent, project-specific environmental review. Under CEQA *Guidelines* Section 15168, however, this EIR may be used to eliminate the need for or reduce the scope of EIRs for subsequent development projects within the City. Projects that would affect land use designations on individual parcels during or after adoption of the Land Use and Circulation Elements updates would not necessarily affect the overall analysis of cumulative effects in this program-level EIR.

CEQA requires assessment of impacts on the physical environment (CEQA *Guidelines* Sec. 15358 and 15360). While the updated Land Use and Circulation Elements would be part of the *General Plan* and would therefore apply to the entire City of Hercules, this EIR focuses on the effects of development made possible and anticipated by changes in land use designations on the 24 affected parcels. For purposes of this report, those 24 parcels and surrounding roadways are referred to collectively as the "Study Area." Where applicable, the EIR discusses changes that would occur elsewhere in Hercules and/or outside the City. For example, increased traffic generated by development on one of the 24 parcels would directly affect intersections outside the Study Area and roadways outside the City. Conversely, direct effects of development on that same parcel on particular plant or animal species would be more localized. (Indirect and cumulative impacts are typically felt over a wider area for all issues.)

D. ORGANIZATION OF THE EIR

This EIR is organized into eight chapters. This introductory chapter presents an overview of the proposed project and the relevant state requirements and guidelines for planning and environmental review. Chapter II summarizes the project description, the significant environmental effects of the proposed project, and the mitigation measures identified to reduce or avoid those effects. Chapter III presents a more detailed description of the project, including

the location and boundaries of the planning area, the project's characteristics, the project sponsor's objectives, and discretionary approvals required from the City of Hercules.

Chapter IV includes an assessment of the environmental setting, potential impacts under buildout of the updated Land Use and Circulation Elements (organized by environmental topic), and mitigation measures. Chapter V provides an overview of the unavoidable significant adverse impacts and the cumulative effects of the proposed elements' updates. Chapter VI provides an analysis of three possible alternatives to the proposed project. Chapter VII lists those involved in the preparation of this EIR, and Chapter VIII presents the appendices to this document including the Initial Study, Notice of Preparation and responses thereto, Transportation Appendix, Biology Appendix, Hazardous Materials Appendix, Fiscal Analysis, and the draft Land Use Element, draft Redevelopment Plan Amendments, and draft Circulation Element.

E. PUBLIC REVIEW

The Draft EIR will be available for public review for 45 days. During this period, comments on the EIR's accuracy and completeness may be submitted by public agencies, interest groups, and concerned individuals. Written comments should be submitted to Mr. Gary Hembree, Community and Business Development Director, City of Hercules, 111 Civic Drive, Hercules, California, 94547. Oral comments can be made at a public hearing on the project, to be scheduled and publicly noticed by the City. All oral and written comments relevant to the content of the Draft EIR received during the public comment period will be addressed in the Final EIR.

REFERENCES - Introduction

State of California, *CEQA: Statutes and Guidelines*, 1992.

State of California, *General Plan Guidelines*, November 1990.

City of Hercules, *City of Hercules: Master Environmental Assessment*, December 1991.

II. SUMMARY

PROJECT DESCRIPTION

The General Plan is considered to be the "constitution" for growth within cities and counties in California. The pattern of land use and image of the community are outlined within the General Plan and its respective elements. The updated Land Use Element proposal is guided by four major concepts, which were defined by a Community Panel. The concepts include extending the linear park along Refugio Creek westward from San Pablo Avenue to San Pablo Bay; developing retail uses near the I-80/SR 4 interchange; new jobs and business opportunities can be accommodated between the aforementioned commercial area and existing employment areas; and a limited amount of new residential development should be allowed on vacant properties that adjoin existing neighborhoods rather than the employment or commercial areas. The Community Panel recommendations are incorporated within the updated Land Use Element. (The Element's goals and objectives are enumerated in Chapter III, Project Description.) Master or Specific Plans may be needed to further define objectives for development in certain areas of the City, such as the historic town center and bay shore areas.

The current Circulation Element was adopted by the City Council in October 1988. The draft Circulation Element Update would be consistent with the development assumptions in the Land Use Element Update, as required by state law. Generally, the existing Circulation Element objectives and policies are continued in the draft Circulation Element Update, with the primary exception being a change in traffic level of service standards necessitated by the passage of Contra Costa County Measure C (1988) and the City's subsequent adoption of a *General Plan* Growth Management Element. The two objectives remain as in the current Circulation Element: provide for the movement of people and commodities in the City and plan for the preservation and enhancement of visual qualities as viewed from designated scenic routes.

With regard to traffic levels of service, whereas the existing Circulation Element stated that peak-hour traffic on arterial streets and intersections should operate at Level of Service D or better, the draft Circulation Element Update reflects the adopted level of service (LOS) standards in the Growth Management Element, ranging from LOS D on most Basic Routes to LOS "Low" E on Sycamore Avenue and Bayberry Avenue. A complete description of the standards is provided in Section IV.B, Transportation and Circulation.

The main feature of the updated Land Use Element is the redesignation of 24 parcels that total approximately 600 acres or 0.9 square miles. The sizes of parcels affected by the changes in land use designation range from parcels of less than two acres to larger combined properties of up to 130 acres. The proposed parcels to be redesignated are located mainly west of I-80, and along the SR4 corridor; most of the acreage is west of I-80. They can be generally grouped into two categories: land that was used as production, buffer area, and storage for the old Hercules Powder Company (about 430 acres) and land located in the SR 4 and I-80 corridors (about 165 acres). One parcel (about 2.5 acres) is in the eastern portion of the City on Refugio Valley Road.

The parcels are generally undeveloped or underdeveloped with structures consisting of mostly sheds, stables and parcel used for open storage. Three of the parcels are partially developed and are being utilized by businesses, while one is under construction as a transit center and a retail development has been approved for another.

The Land Use Element Update has redefined the land uses in the current General Plan, incorporating existing land uses' type and density. In addition, new categories are specifically designed for some of the 24 parcels. A permissible floor-area-ratio (FAR) range and a "typical" FAR is also designated for each commercial land use. The Land Use Element states that the typical FAR would be the maximum development intensity allowed unless a development were to meet a specific goal, policy, objective or program of the Element, in which case, development may be built to the higher end of the permissible range; additional site-specific study of traffic and other impacts then might be required.

For residential uses, density ranges could be adjusted pursuant to state and city laws and policies: higher densities would be permitted if consistent with the state policy on density bonuses for affordable housing, while lower densities may be permitted when specific findings outlined below are made by the Planning Commission. Generally, these projects would have to be compatible with and not detrimental to surrounding development while not preventing the city from achieving its goals for low and moderate income housing.

The analyses of impacts in this EIR generally are based on development at the typical density level. Additional environmental review may be required for specific commercial, industrial, or residential projects that propose development above the densities described in this EIR and typical densities in the Land Use Element Update.

The updated land use categories include the following (for residential units, population density is units per acre times 2.89 persons per household):

General Commercial, including retail, wholesale (open to the public) and office use. FAR range: 0.20 to 1.00. Typical FAR: 0.30.

Historic Town Center, including offices, restaurants, and specialty shops, and multi-family residential in existing historic buildings and new architecturally compatible structures. FAR range: 0.15 to 0.40. Typical FAR: 0.20. Residential density: up to 17 units per acre (maximum 40 units total).

Waterfront Commercial, including restaurants, food and beverage shops, recreational equipment sales, bait-and-tackle shops and visitor-oriented uses. FAR range: 0.15 to 0.30. Typical FAR: 0.20.

Community Commercial, including retail, office and service uses that would serve residents and employees. FAR range: 0.20 to 1.00. Typical FAR: 0.25.

Recreational Commercial, including recreational activities such as a golf course, driving range, batting cages, athletic clubs, and cafes and bars. FAR range: 0.20 to 0.40. Typical FAR: 0.30.

Commercial/Public, a BART-owned parcel under development as a transit center. FAR not to exceed that allowed in "General Commercial."

Planned Office/R&D, including research and development, manufacturing, administrative offices, and warehouse and distribution centers. FAR range: 0.25 to 1.00. Typical FAR: 0.30. Development to be governed by specific area plans or master plans.

Planned Commercial/Industrial, including retail, office, research and development, manufacturing, and business industrial services. FAR range: 0.25 to 0.50. Typical FAR: 0.30. Development to be governed by specific area plans or master plans.

Planned Commercial/Residential, including mixed commercial and multi-family residential uses. FAR range: 0.20 to 0.40. Typical FAR: 0.30. Residential density: up to 30 units per net acre. Development to be governed by specific area plans or master plans.

Industrial/Residential, combining work space and residential space in the same structure. FAR: up to 0.50. Residential density: up to 25 units per acre.

Industrial, including heavy industrial uses, refineries, and storage facilities. FAR range: 0.30 to 0.50. Typical FAR: 0.40.

Multi-Family Low Density, including single- and multi-family residences, townhouses, duets, condominiums or apartments. Density: 7 to 12 units per acre, with some supporting uses such as schools, churches, and day care facilities.

Multi-Family Medium Density, including multi-family residences (primarily condominiums, apartments and townhouses) on five-acre or larger parcels. Density: 12 to 30 units per net acre, with the intention of including affordable housing, and some supporting uses.

In addition, the following designations are included but do not apply to any of the 24 study area parcels: Single Family Estate (1 to 2 units per acre); Single Family Low Density (2 to 7 units per acre, with some secondary units and support uses); Single Family Medium Density (7 to 12 units per net acre, with some support uses); and Multi-Family High Density (30 to 55 units per net acre).

The Circulation Element addresses the traffic and circulation constraints associated with each of the 24 affected parcels and recommends several improvements to Hercules' existing road network as a whole to accommodate the potential build-out of such land uses to the year 2010. Transportation-related parcel-specific improvements are not identified because individual development plans are not proposed. Traffic analysis for the Circulation Element Update was based on the West County Travel Demand Model, a regional traffic model developed since the existing Circulation Element was adopted. As noted, the draft Circulation Element Update also includes revised traffic level of service standards.

The Circulation Element Update describes several roadway and other transportation improvement projects that are either already funded or are otherwise expected to be complete by 2010. Those projects include, among others, construction of the SR 4 freeway, including interchanges at Willow Avenue and east of Sycamore Avenue and extension of Willow to Bayberry Avenue; construction of a new local street connecting the new SR 4 interchange to residential neighborhoods in Refugio Valley; Refugio Valley Road improvements; and the previously noted transit center. The draft Circulation Element Update includes a conceptual alignment for a new roadway that could be constructed to serve development west of San Pablo Avenue. Such a roadway likely would be constructed in the future, once specific development proposals were received for some of the parcels west of San Pablo Avenue. To date, no specific proposals have been developed for the roadway alignment. Further site-specific environmental review could be required for this project.

The draft Circulation Element Update concludes that local peak-hour traffic conditions within Hercules generally would be acceptable in 2010, the year assumed for buildout under the Land Use Element Update, with the exception of two key intersections on San Pablo Avenue: at John Muir Parkway and at Sycamore Avenue. At those intersections, peak-hour traffic conditions are projected to be substantially worse than the Level of Service E objective established by the West Contra Costa County Traffic Advisory Committee for San Pablo Avenue, largely as a result of traffic that uses San Pablo Avenue as an alternate to the congested conditions on Interstate 80. At the same time, the City and other local jurisdictions do not propose to increase capacity on

San Pablo Avenue, but instead to attempt to reduce traffic on I-80 as a means of improving traffic conditions on the freeway and on San Pablo Avenue. The draft Circulation Element Update calls for promoting commuter rail and a train station in Hercules to divert traffic from Interstate 80. In addition, the draft Circulation Element Update includes an implementation action under which the City would establish a traffic mitigation fee program.

The project would also include updating the Dynamite Redevelopment Project plan, encompassing a large part of the study area, to reflect changes in the Land Use Element.

The proposed Land Use Element provides for the physical development of the City. For the purposes of this EIR, it is assumed that "build-out" of the City (the development of all the designated land uses at the typical density level) would occur by the year 2010, a conservative assumption. The analysis assumes, separate from the project, construction of 800 residential units and a hotel (plus existing golf course) at the recently annexed Franklin Canyon area of eastern Hercules. Development consistent with the updated Land Use Element would allow for a 64 percent increase over the existing City population, compared to a 25 percent increase under the existing Land Use Element.

In order to adopt the revised Land Use and Circulation Elements, the City of Hercules' Planning Commission and City Council must hold public hearings and certify the EIR. Consistent with state law, amendments to mandatory general plan elements may occur four times within a calendar year. The approved Land Use and Circulation Elements would be considered an amendment because the elements are being replaced and incorporated within the General Plan. The City must also ensure consistency with other General Plan elements and its Zoning Ordinance.

IMPACTS AND MITIGATION MEASURES

Project impacts identified in this EIR are summarized in Table II.1, Summary of Impacts and Mitigation Measures, which follows p. II-12. This table lists impacts and mitigation measures in three major categories: significant impacts that would remain significant even with mitigation; significant impacts that can be mitigated to a level of less-than-significance; and impacts that would not be significant. For each significant impact, the table includes a summary of mitigation measure(s) identified by the EIR, followed by a column that indicates whether the impact would be mitigated to a less-than-significant level. Please refer to Chapter IV,

Environmental Setting, Impacts, and Mitigation Measures, for a complete discussion of each impact and associated mitigation.

ALTERNATIVES TO THE PROPOSED PROJECT

A. NO-PROJECT ALTERNATIVE

A.1. No Development Alternative

A No Development alternative is not considered feasible, in that it would require that the City refuse to approve development proposals in the Study Area. Should such an alternative come to pass, the resulting impacts would be maintenance of existing environmental conditions for those conditions that would otherwise change with development in Hercules. Certain impacts would occur whether or not additional development were to occur in Hercules. For example, even with no future development in Hercules, traffic conditions on I-80 and San Pablo Avenue would be congested due to traffic traveling through Hercules to and from other destinations; increased background traffic unrelated to Hercules development would also affect air quality.

A.2. Existing Land Use and Circulation Elements

This alternative would involve no change to the City's existing *General Plan* Land Use and Circulation Elements; buildout would occur under the existing elements. Existing *General Plan* land use designations are shown in Figure IV.A.1 in Section IV.A, Land Use. Under this alternative, there would be no residential uses and no mixed-use designations on any of the 24 Study Area parcels. As a result, population growth would be substantially less, and the year 2010 buildout population of Hercules would be approximately 23,600, compared to approximately 29,900 under the proposed project. Total employment in 2010 under this alternative would be about 7,000, compared to about 18,350 with the project.

Under this alternative, land use would be a lower intensity, particularly in the area west of I-80, where the Industrial designation would predominate. If large-scale industrial development were not feasible, employment growth could be even less. Impacts related to the intensity of development generally would be less substantial with this alternative than with the project. Land use incompatibilities could still occur, however, particularly between potential industrial development west of I-80 and existing residential development. Less employment, particularly west of I-80, would diminish traffic impacts, compared to the project. However, background growth plus development under this alternative would result in Level of Service F at the

San Pablo Avenue/John Muir Parkway and San Pablo Avenue/Sycamore Avenue intersections, as with the project; other Hercules intersections would operate acceptably. Freeway operations on I-80 would be at LOS E/F to LOS F, as with the project. Emissions of criteria air pollutants would be less, but would be a significant and unavoidable effect, as with the project. This alternative would not result in increases in population and employment beyond ABAG projections, and therefore would be consistent with the *1991 Clean Air Plan*; compared to the project. Hazardous materials impacts would be expected to be greater with this alternative, compared to the project, if industrial uses that were developed would employ hazardous materials in their production processes; existing laws and regulations would largely govern the handling of those materials. As with the proposed project, this alternative would contribute to the cumulative hazardous waste disposal requirements in Contra Costa County and would result in a significant unavoidable effect. Demand for public services would be less substantial than with the project because of the lower population and employment forecasts. As with the proposed Land Use and Circulation Elements Update, projected elementary school enrollment would exceed capacity, and school effects would be significant and unavoidable. Park impacts would be less-than-significant, in contrast to the project, due to the reduced residential population. Impacts related to existing site-specific conditions, such as cultural resources, vegetation and wildlife, and geology, would be similar to those with the proposed project, as those impacts would be largely a function of whether a particular parcel were developed and would be less dependent on the nature of development. Similarly, impacts related to risk of flooding and to vehicle effects on runoff would relate to the placement of development on a site; the population potentially exposed to the 100-year flood would be smaller than with the project.

B. COMMERCIAL EMPHASIS ALTERNATIVE

The Commercial Emphasis Alternative would change (compared to the project) the anticipated land uses of portions of three parcels, resulting in an increase in the square footage of commercial development proposed and a decrease in the number of residential units proposed. This alternative would result in approximately 5.75 million square feet of commercial development, compared to about 5.01 million square feet with the proposed Land Use Element Update (about 14.8 percent more). This alternative would result in about 1,870 multi-family residential units, compared to about 3,815 with the proposed Land Use Element Update (about 51 percent fewer). On Parcel 3, up to 1,350 dwelling units would be replaced by up to 588,060 sq. ft. of commercial development; on Parcel 4, up to 42,471 sq. ft. of commercial development and up to 98 dwelling units under the Land Use Element Update would be replaced by up to 84,942 sq. ft. of commercial development; and on Parcel 13, up to 54,880 sq. ft. of

commercial development and up to 502 dwelling units would be replaced by up to 164,657 sq. ft. of commercial development. Under this alternative, there would be about 1,950 fewer dwelling units compared to the proposed project, and population growth therefore would be somewhat less. The year 2010 buildout population of Hercules would be approximately 24,300, compared to approximately 29,900 under the proposed project. Total employment in 2010 under this alternative would be about 20,000, compared to about 18,350 with the project.

Effects of this alternative would be similar to those of the proposed Land Use and Circulation Elements Update, because the overall level of development would be similar, although certain parcels would contain more commercial and less residential development. Impacts related to the intensity of development generally would be similar with this alternative compared to the project. Land use compatibility would be similar to that with the proposed project, but the decreased residential development, compared to the project, would reduce somewhat the potential for sensitive receptors west of I-80 to be exposed to air quality effects, noise, and light and glare generated by commercial land uses. Greater employment, particularly west of I-80 and along Sycamore Avenue, would increase related traffic impacts, compared to the project, although that increase would be partially offset by a smaller number of residential units. Background growth plus development under the Commercial Emphasis Alternative would result in Level of Service F at the San Pablo Avenue/John Muir Parkway and San Pablo Avenue/Sycamore Avenue intersections, as with the project. Other intersections in Hercules would operate at acceptable levels of service, with mitigation. Freeway operations on I-80 would be at LOS E/F to LOS F, as with the project. Emissions of criteria air pollutants and lack of compliance with the *1991 Clean Air Plan* would be significant unavoidable effects, as they would with the proposed Land Use and Circulation Elements Update. Demand for public services would be comparable to the demand that would be anticipated with the proposed Land Use and Circulation Elements Update because, despite the lower total population, employment would increase, relative to the proposed project. School impacts would be significant and unavoidable, as with the project. Park impacts would be less-than-significant, in contrast to the project, due to the reduced residential population. Impacts related to existing site-specific conditions, such as vegetation and wildlife, geology, and cultural resources, would be similar to those with the proposed project, as those impacts would be largely a function of whether a particular parcel were developed and would be less dependent on the nature of development. Similarly, impacts related to risk of flooding and to vehicle effects on runoff would relate to the placement of development on a site; the population potentially exposed to the 100-year flood would be smaller than with the project. Impacts related to hazardous materials could be marginally greater than with the project due to the greater commercial development with this

alternative; existing laws and regulations would largely govern the handling of those materials. As with the proposed project, this alternative would contribute to the cumulative hazardous waste disposal requirements in Contra Costa County, and would result in a significant unavoidable effect. Visual impacts could be greater than with the project, because commercial development would be expected to result in larger structures than with residential development.

C. RESIDENTIAL EMPHASIS ALTERNATIVE

The Residential Emphasis Alternative would change (compared to the project) the anticipated land uses of portions of three parcels, resulting in a decrease in the square footage of commercial development proposed and an increase in the number of residential units proposed. This alternative would result in approximately 4.89 million square feet of commercial development, compared to about 5.01 million square feet with the proposed Land Use Element Update (about two percent less). This alternative would result in about 4,200 multi-family residential units, compared to about 3,815 with the proposed Land Use Element Update (about 10 percent more). On Parcel 4, up to 42,471 sq. ft. of commercial development and up to 98 dwelling units would be replaced by up to 195 dwelling units; on Parcel 5, up to 13,068 sq. ft. of commercial development would be replaced by up to 30 dwelling units; and on Parcel 13, up to 54,880 sq. ft. of commercial development and up to 502 dwelling units would be replaced by up to 753 dwelling units. Under this alternative, there would be about 1,950 fewer dwelling units compared to the proposed project, and population growth therefore would be somewhat less. The year 2010 buildout population of Hercules would be approximately 31,000, compared to approximately 29,900 under the proposed project. Total employment in 2010 under this alternative would be about 18,100, compared to about 18,350 with the project.

Effects of this alternative would be similar to those of the proposed Land Use and Circulation Elements Update, because the overall level of development would be similar, although certain parcels would contain less commercial and more residential development. Impacts related to the intensity of development generally would be similar with this alternative compared to the project. Land use compatibility would be virtually the same as with the proposed project, with the only sizable area where residential development would replace commercial development being Parcel 13. There, residential development could be affected by the adjacent Santa Fe Railroad tracks and by commercial uses north of the tracks. Less employment, particularly west of I-80 and along Sycamore Avenue, would decrease related traffic impacts, compared to the project; that decrease would be partially offset by a greater amount of residential development. Background growth plus development under the Commercial Emphasis Alternative would result

in Level of Service F at the San Pablo Avenue/John Muir Parkway and San Pablo Avenue/Sycamore Avenue intersections, as with the project. Other intersections in Hercules would operate at acceptable levels of service, with mitigation. Freeway operations on I-80 would be at LOS E/F to LOS F, as with the project. Emissions of criteria air pollutants and lack of compliance with the *1991 Clean Air Plan* would be significant unavoidable effects, as they would with the proposed Land Use and Circulation Elements Update. Demand for public services would be comparable to the demand that would be anticipated with the proposed Land Use and Circulation Elements Update because, despite the greater total population, employment would decrease, relative to the proposed project. Impacts on school enrollment would be significant and unavoidable, as with the proposed project, and would be somewhat greater than with the project. Park impacts would be significant and unavoidable, as with the project. Impacts related to existing site-specific conditions, such as vegetation and wildlife, geology, and cultural resources, would be similar to those with the proposed project, as those impacts would be largely a function of whether a particular parcel were developed and would be less dependent on the nature of development. Similarly, impacts related to risk of flooding and to vehicle effects on runoff would relate to the placement of development on a site; the population potentially exposed to the 100-year floor would be greater than with the project. Impacts related to hazardous materials could be marginally less substantial than with the project due to the lesser commercial development with this alternative; existing laws and regulations would largely govern the handling of those materials. As with the proposed project, this alternative would contribute to the cumulative hazardous waste disposal requirements in Contra Costa County, and would result in a significant unavoidable effect. Visual impacts would be similar to those of the proposed Land Use and Circulation Elements Update.

D. REDUCED-DENSITY ALTERNATIVE

The Reduced-Density Alternative represents a variety of scenarios that could result in less intensive development than that envisioned by the project. For purposes of analysis, the Reduced-Density Alternative assumes the same land use designations for all parcels as does the project, and assumes that development would occur at a density that reflects the low end of the density range for each designation. The Reduced-Density Alternative could also represent a substantially greater reduction in permitted development on certain parcels (such as parcels containing potential wetlands or important visual features), compared to the project, while retaining the same level of development on other parcels as would the project. For purposes of analysis, the Reduced-Density alternative would result in approximately 3.78 million square feet of commercial development, compared to about 5.01 million square feet with the proposed Land

Use Element Update (about 24.4 percent less). This alternative would result in about 1,572 multi-family residential units, compared to about 3,815 with the proposed Land Use Element Update (about 59 percent fewer). Under this alternative, there would be about 2,240 fewer dwelling units compared to the proposed project, and population growth therefore would be less. The year 2010 buildout population of Hercules would be approximately 23,400, compared to approximately 29,900 under the proposed project. Total employment in 2010 under this alternative would be about 14,700, compared to about 18,350 with the project.

Impacts related to the intensity of development generally would be less substantial with this alternative than with the proposed Land Use and Circulation Elements Update; that is, traffic, air quality, traffic-related noise, and demand for public services, including schools, would be reduced. Despite the reduced trip generation, background growth plus development under the Reduced-Density Alternative would result in Level of Service F at the San Pablo Avenue/John Muir Parkway and San Pablo Avenue/Sycamore Avenue intersections, as with the project. Other intersections in Hercules would operate at acceptable levels of service, with mitigation. Freeway operations on I-80 would be at LOS E/F to LOS F, as with the project. Emissions of criteria air pollutants would be a significant unavoidable effect, as with the proposed Land Use and Circulation Elements Update. Population would be comparable to that with the existing Land Use Element (No Project Alternative), but employment would be substantially greater (although less than with the proposed project), and this alternative likely would not be in compliance with the *1991 Clean Air Plan*; this would be a significant, unavoidable effect, as with the project.

Land use compatibility would be similar to that with the proposed project, but the decreased residential development, compared to the project, would reduce somewhat the potential for sensitive receptors west of I-80 to be exposed to air quality effects, noise, and light and glare generated by commercial land uses. Demand for public services would be less than the demand that would be anticipated with the proposed Land Use and Circulation Elements Update because of reduced population and employment. Because of the reduced population, compared to the project, school impacts would be less than with the project. However, because elementary school capacity would not be sufficient to accommodate demand and this alternative would not result in sufficient fees to construct a new school, this impact would be significant and unavoidable, as with the project. Park impacts would be less-than-significant, in contrast to the project, due to the reduced residential population. Impacts related to existing site-specific conditions, such as vegetation and wildlife, geology, and cultural resources, could be similar to those with the proposed project, depending on whether specific parcels were designated for substantially less density. As those impacts would be largely a function of whether a particular

parcel were developed and would be less dependent on the nature of development, a uniform reduction in permitted density would not itself result in substantially different impacts compared to the project. If development on more environmentally sensitive parcels were more highly restricted, this alternative could have less impact than the project on those parcels. Impacts related to risk of flooding and to vehicle effects on runoff would relate to the placement of development on a site; as with the No Project Alternative, the population potentially exposed to the 100-year flood would be smaller than with the project. Impacts related to hazardous materials would be somewhat less than with the project due to the lesser commercial development with this alternative; existing laws and regulations would largely govern the handling of those materials. (This alternative would expose substantially fewer residents to hazards.) As with the proposed project, this alternative would contribute to the cumulative hazardous waste disposal requirements in Contra Costa County, and would result in a significant unavoidable effect. Visual impacts could be less substantial than with the project due to the smaller amount of development. This would be particularly true if certain visually sensitive parcels were designated for substantially less development.

Because impacts of this alternative related to the intensity of development generally would be less substantial than with the proposed project, and because this alternative would not have significant, unavoidable effects on park and recreation services or on air quality relative to the 1991 Clean Air Plan, in contrast to the proposed project, the Reduced Density Alternative is considered the environmentally superior alternative. However, this alternative would also result in less financial benefit for the City.

TABLE II.1: SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A. SIGNIFICANT UNAVOIDABLE IMPACTS

SIGNIFICANT IMPACT	MITIGATION PROPOSED AS PART OF THE PROJECT	MITIGATION IDENTIFIED IN OTHER GENERAL PLAN ELEMENTS	MITIGATION IDENTIFIED IN THIS EIR	RESIDUAL IMPACT
IV.B Transportation and Circulation				
Transportation-1: Traffic generated by development consistent with the proposed Land Use and Circulation Elements Update would contribute to unacceptable levels of service at the San Pablo Avenue/John Muir Parkway and San Pablo Avenue/Sycamore Avenue intersections in the a.m. and p.m. peak hours.	Land Use Element Goal: Preserve and enhance the community's quality of life with well balanced growth and development. Land Use Element Objectives 2, 3, 11, 12, 13; Policies 2A, 2B, 3A, 3B, 3C, 3D, 11A, 11B; Programs 3A.1, 3A.2 Circulation Element Objectives 2e, 2f, 2h; Policies 2a, 2e; Implementation Actions 6, 7, 9, 10, 11, 14	Growth Mangement Element, Goal C.1, Goal C.2, Goal C.3, Goal C.4; Implementing Policy/Program E.2, E.4, E.5, E.6, E.7, E.8, E.9, E.10	Transportation-1a: With an objective of maintaining LOS E or better, the City of Hercules could implement the following measure: - Explore the feasibility of construction of a second northbound right turn lane on San Pablo Avenue between Sycamore Avenue and SR 4 to allow right turns from westbound Sycamore Avenue while preserving the public investment in the City of Hercules transit transfer station (the park-and-ride lot under construction on Parcel 10) Transportation-1b: With an objective of maintaining LOS E or better, WCCTAC jurisdictions could implement the following measures (many of these measures would be outside the authority of the City of Hercules): - monitor level of service on San Pablo Avenue; - encourage completion of Richmond Parkway; - discourage through traffic on I-80 from diverting onto to local streets through improvements to I-80 such as the HOV lane construction by Caltrans scheduled to begin in 1995, and by requesting CCTA to develop, in conjunction with Caltrans and Solano County, a Traffic Operation	SU

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			System Management plan For I-80 that will regulate the flow of traffic on I-80 to respect the freeway's system's constraints and bottlenecks; • adopt design standards for new development to minimize turning movements on and off San Pablo Avenue (try to minimize the number of access points on and off San Pablo Avenue); • synchronize signal timing throughout the San Pablo Avenue corridor; • emphasize HOV use of I-80 and encourage transit use in the corridor; • encourage diverted traffic to return to I-80 on the next downstream feeder road through improved signage; • clearly identify feeder roads for diverted motorists to return to I-80; • support WestCAT's efforts to assess need for improved transit service along San Pablo; and • support extension of bicycle lanes to encourage more usage by commuters and shoppers.	

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SIGNIFICANT IMPACT	MITIGATION PROPOSED AS PART OF THE PROJECT	MITIGATION IDENTIFIED IN OTHER GENERAL PLAN ELEMENTS	MITIGATION IDENTIFIED IN THIS EIR	RESIDUAL IMPACT
Transportation-3: Traffic generated by development consistent with the proposed Land Use Element would contribute to unacceptable cumulative levels of service on the I-80 freeway.	Land Use Element Goal: Preserve and enhance the community's quality of life with well balanced growth and development. Land Use Element Objectives 2, 3, 11, 12, 13; Policies 2A, 2B, 3A, 3B, 3C, 3D, 11A, 11B; Programs 3A.1, 3A.2 Circulation Element Objectives 2e, 2f, 2h; Policies 2a, 2e; Implementation Actions 6, 7, 9, 10, 11, 14	Growth Mangement Element, Goal C.1, Goal C.2, Goal C.3, Goal C.4; Implementing Policy/Program E.2, E.4, E.5, E.6, E.7, E.8, E.9, E.10	Transportation-3a: The following planned capital projects for I-80 are included in the Circulation Draft of the West Contra Costa County Action Plan (most of these measures would be outside the authority of the City of Hercules): <u>1990-2000</u> - Widen for HOV lanes from Bay Bridge toll plaza to Atlas Road - Construct Atlas Road interchange, including HOV ramps - Construct eastbound auxiliary lane between Richmond Parkway and Appian Way - Install ramp metering hardware at all on-ramp locations - Construct 200-stall Park and Ride lot at Atlas Road interchange - Construct auxiliary lanes from Central Avenue to San Pablo Dam Road - Construct Park and Ride lot at the SR 4 interchange <u>2000-2010</u> - Reconstruct SR 4 interchange - Add transit off-ramp and modify interchange at Cutting Boulevard - Widen for HOV lanes from Atlas Road to Carquinez Bridge toll plaza (some portions in Pinole and Hercules to be complete by 1995)	SU

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			Transportation-3b: The following is a summary of the Traffic Service Objectives and Actions for I-80 included in the Circulation Draft of the West Contra Costa County Action Plan. Responsibility for implementation rests with the West Contra Costa Transportation Advisory Committee, its member jurisdictions (including Hercules), and applicable transit agencies (many of these measures would be outside the authority of the City of Hercules). <u>Objective:</u> Increase peak-direction vehicle occupancy on I-80 by 15 percent by 2005. <u>Actions:</u> Support construction of HOV lanes between SR 4 and Carquinez Bridge. Seek MTC funding to analyze Richmond/Rodeo-to-San Francisco ferry. Promote maximum use of new HOV lanes (through bridge toll incentives). <u>Objective:</u> Increase peak-direction transit ridership in I-80 corridor by 20 percent by 2000. <u>Actions:</u> Support timed bus/train transfer between BART, AC Transit, and others. Support continued shuttle service to BART stations. Participate in I-80 corridor study. Promote increased frequency of El Sobrante-Richmond-San Francisco buses. Support expansion of express buses in I-80 corridor. Encourage adequate parking and bus service at West County BART stations.	

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			<u>Objective:</u> Achieve 50 percent midday utilization of park and ride lots by 2000. <u>Actions:</u> Support greater security and amenities at park and ride lots. Promote adequate transit service to park and ride lots.	
			<u>Objective:</u> Increase daily West County BART ridership by 10 percent by 2000. <u>Actions:</u> Support high-level ongoing maintenance and improvements at stations. Support increased security at stations.	
			<u>Objective:</u> Achieve daily commuter rail ridership of 6,400 by 2000. <u>Actions:</u> Support commuter rail from Fairfield and Brentwood to West Oakland. Assist in determination of appropriate West County station locations. Support rail stations in Hercules and elsewhere to intercept I-80 vehicle traffic.	
			<u>Objective:</u> Increase daily trips on Solano County BART feeder bus by 20 percent by 1995. <u>Actions:</u> Obtain 1990 ridership data from BART. Promote enhancements to Solano County BART feeder bus service.	

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A. SIGNIFICANT UNAVOIDABLE IMPACTS

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			Transportation-3c: Although no significant impact was identified, the following planned capital projects for SR 4 are included in the Circulation Draft of the West Contra Costa County Action Plan (these measures would be outside the authority of the City of Hercules): <u>1990-2000</u> a. Construct ramps at Bayberry /a/ b. Modify Sycamore from intersection to interchange /a/ c. Construct grade separation; on/off ramps for westbound SR 4 at Willow Avenue /a/ <u>2000-2010</u> a. Construct four-lane freeway from I-80 to Cummings Skyway /a/ b. Improve interchange at Sycamore Avenue /a/ c. Improve current SR 4 alignment as two-lane arterial parallel to freeway /a/ These improvements are included in Committed Roadway Network Changes in Table IV.B.6 on p. IV.B-22 of this section and are already assumed in the analysis but are included here in the interest of providing the complete list of improvements. Transportation-3d: Although no significant impact was identified, the following is a summary of the Traffic Service Objectives and Actions for SR 4 included in the Circulation Draft of the West Contra	

TABLE II.1: SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES			
Activity	Environmental Impact	Mitigation Measure	Responsible Party
Construction	Soil erosion, dust, noise	Plant vegetation, use of erosion control, noise barriers	Construction Company
Operation	Water pollution, air quality, noise	Regular maintenance, water treatment, noise monitoring	Operating Company
Decommissioning	Soil contamination, debris	Soil remediation, debris removal	Decommissioning Contractor

A. SIGNIFICANT UNAVOIDABLE IMPACTS

SIGNIFICANT IMPACT	MITIGATION PROPOSED AS PART OF THE PROJECT	MITIGATION IDENTIFIED IN OTHER GENERAL PLAN ELEMENTS	MITIGATION IDENTIFIED IN THIS EIR	RESIDUAL IMPACT
Table A. Environmental Impacts and Mitigation Measures	Local Air Quality Program (LAQAP), TIA, PM ₁₀ , PM _{2.5} , and CO. In addition to the LAQAP, the project will implement the following measures:	The following measures are included in the General Plan Elements:	Costa County Action Plan. Responsibility for implementation rests with the West Contra Costa Transportation Advisory Committee, its member jurisdictions (including Hercules), and applicable transit agencies (many of these measures would be outside the authority of the City of Hercules).	None
Table B. Cumulative Impacts	Table C. Cumulative Impacts	A cumulative impact analysis was conducted to determine if the project's impacts, when combined with other existing or planned projects, would result in significant adverse effects.	<u>Objective:</u> Achieve LOS E or better by 2000. <u>Actions:</u> Make SR 4 freeway the highest priority highway project in West County. Actively pursue funding through MTC for SR 4 freeway. Advocate use of federal and state funds for SR 4 freeway and I-80 HOV lanes. Monitor SR 4 level of service. Encourage WestCAT to maintain existing Richmond-Martinez bus service. Encourage WestCAT to provide service between Richmond and Concord Encourage WestCAT to increase frequency of Richmond BART service. Encourage WestCAT to provide timed transfer at Martinez Amtrak station.	None
RICHMOND AND MARTINEZ	LVL ON THE GATEWAY HIGHWAY CORRIDOR	CUMULATIVE IMPACT ANALYSIS	<u>Objective:</u> Reduce annual accident rate on SR 4 by 10 percent by 2000. <u>Actions:</u> Obtain accident data from Caltrans. Pursue federal, state, and local funds for SR 4 freeway. Promote construction of SR 4 freeway.	None

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A. SIGNIFICANT UNAVOIDABLE IMPACTS

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IV.F Public Services and Utilities				
Schools-1: Development consistent with the proposed Land Use and Circulation Elements Update would increase the number of students served by the West Contra Costa Unified School District.	Land Use Element Programs 2C.1 and 3A.3; Objective 3	None identified.	Schools-1a: For specific development proposals that require legislative action (<i>e.g.</i> , <i>General Plan</i> Amendment, adoption of Specific Plan, amendment to Zoning Ordinance) and that would have a substantial effect on school facilities through a projected increase in enrollment, the City shall enter into consultation with the West Contra Costa Unified School District and the project proponent(s) to determine whether there can be determined a mutually agreeable contribution to the school district by the proponent(s) (including, but not limited to cash payment, land dedication, and/or provision of school facilities) to offset the impacts of increased enrollment. For such development proposals requiring legislative action, the City shall consider imposition of a development fee that is greater than that required for non-legislative proposals, if such fee is justified by economic analysis. Schools-1b: In the case of new residential developments having a significant impact on school facilities, the City shall take steps to ensure that developers in each case coordinate and work closely with the District (via the City) regarding timely and proper submittal of the required development impact fees.	SU

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A. SIGNIFICANT UNAVOIDABLE IMPACTS

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Park-1: Development consistent with the Land Use and Circulation Elements Update would increase the need for neighborhood and community parks.	Land Use Element Programs 2C.1, 3A.3, 14A.1, 14A.2, and 14A.3; Objectives 3 and 14; Policy 14A	The following measures are included in the Growth Management Element: A minimum of 1.5 acres of neighborhood parks shall be provided for each 1,000 residents. A minimum of 3.5 acres of community parks shall be provided for each 1,000 residents. Growth Management Element Performance Standard III.E.3 The following measures are included in the Open Space/Conservation Element: The City should develop a master drainage plan [for Refugio Creek] which provides for: Open Space/Conservation Element, V.B.3.b.1, V.B.3.b.3, V.B.3.b.4; Objectives 1a, 1c, 1d; Community Development Requirement V.D.2.a, V.D.2.b, V.D.2.c Economic Development Element Objective II.C.2	Park-1a: The City shall continue to work closely with the East Bay Regional Park District (EBRPD) in implementing the Shoreline Trail through Hercules. Park-1b: The City shall ensure that new development funds its share of costs associated with the provision of park facilities by attaching project-specific mitigation as conditions of approval. Park-1c: The City shall consider development agreements that would provide additional community parks and recreation facilities, such as ballfields and other areas for organized recreation, in exchange for allowing development at greater than the "typical" FAR, as specified in the proposed Land Use Element Update.	SU

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IV.G Hazardous Materials Hazard-7: Generation of hazardous waste by new industries in the project area (as discussed under Impact Hazard-3) would add to cumulative hazardous waste disposal requirements in the County. Cleanup and disposal of any contaminated soils within the project area (as discussed under Impact Hazard-1) would increase the cumulative burden on existing landfill storage capacity.	Hazard-7a: The Source Reduction and Recycling Element of the City's General Plan encourages waste minimization and includes plans and programs for handling special wastes that might be hazardous, such as contaminated soil and industrial sludge (City of Hercules, 1991a). Hazard 7b: The City's Hazardous Waste Management Plan (Network Environmental Systems, 1990) also addresses waste minimization by encouraging waste minimization by local businesses through source reduction, product substitution, development of alternative technologies, recycling, or other effective means. The Hazardous Waste Management Plan goes on to recommend that the City provide staff and work with the local business community to undertake and encourage a program of identifying waste minimization opportunities or procedures for local industry. Procedures developed should encourage source reduction, recycling, reuse, and on-site treatment.	None identified.	None identified.	SU

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IV.K Air Quality				
Air-3: Projected development under the proposed Land Use and Circulation Elements Update would generate criteria air pollutants that would increase total air pollutant emissions in the region.	Land Use Element Policies 2B, 3A and 11A; Programs 3A.1 and 3A.2 Circulation Element Objective 2.h; Policy 2.e; Implementation Programs 6, 10, and 14	Economic Development Element Implementation Program 3	Air-3a: The City could prepare an Air Quality Element of its <i>General Plan</i>. The BAAQMD recommends that an Air Quality Element be developed for cities subject to rapid growth and change. An Air Quality Element can be used in the preparation of subsequent specific area plans, EIRs, and for the achievement of ambient air quality standards. The BAAQMD's philosophy is that air quality concerns should be an early input into the planning process. The purpose of the Air Quality Element would be to: - contain the air quality goals of the City, based on background conditions including local and regional meteorological influences on air quality, emissions inventory data, and existing City sources of criteria, odorous and toxic air pollutants. - provide City-approved mitigation measures for mobile sources, stationary sources, and a commitment to implementation of these measures in specific projects that are subsequently proposed.	SU

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A. SIGNIFICANT UNAVOIDABLE IMPACTS

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			• serve as a land-use planning tool by identifying sensitive receptors in the City. • encourage mixed-use development that could minimize vehicle use. Air-3b: Coordinate with the BAAQMD in planning future growth, implementing regional transportation plans and trip reduction measures, and controlling stationary source emissions. Incorporate the recommendations of the BAAQMD in General Plan policies and directing for regional growth and development.	
Air-5: The Land Use Element Update would result in increases in population and employment beyond ABAG projections and, therefore, would not be consistent or in conformance with the <i>1991 Clean Air Plan</i> .	Land Use Element Policies 2B, 3A, and 11A, and Programs 3A.1 and 3A.2, discussed in mitigation for Impact Air-3, would help minimize air quality effects and therefore facilitate compliance with '91 CAP. Circulation Element Objectives 2.h and 2.e; Implementation Programs 6, 10, and 14	None identified.	Mitigation Measure Air-3a and Air-3b, discussed in mitigation for Impact Air-3.	SU

TABLE II.1: SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

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IV.A Land Use, Plans and Policies				
Land Use-1: Development consistent with the proposed Land Use Element could result in conflicts between incompatible land uses.	Planned Commercial-Residential definition: The definition of the proposed Planned Commercial-Residential land use designation includes the stipulation that "development of these properties shall be carefully planned to insure that the benefits of mixed-use development are fully realized, and the potential negative impacts of one use on another are minimized." In addition, commercial structures and uses "shall be developed according to a master plan. . . ." Land Use Element Policies 2A, 3D, 5A and 13A; Concept 4	None identified.	The City shall incorporate the following policies into the proposed Land Use Element Update of the City's General Plan: • Encourage commercial and industrial facilities to enhance and complement the surrounding areas by utilizing compatible architecture and landscaping. • Accommodate planned commercial-industrial and industrial-residential uses in areas buffered from adjacent uses that may be incompatible. • New commercial development should not adversely affect the quality of the City's residential neighborhoods or Hercules Historic District. • Require new development along the bay shoreline to provide a reasonable degree of buffering between such development and adjacent salt and mud flat areas. • Require proposed new development with potential conflicts to demonstrate that such conflicts can be minimized or mitigated to an acceptable level before the development is approved.	LS

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Land Use-2: Implementation of the proposed Land Use Element Update would allow increased density and increase the urban land use within the City and would change the distribution of land uses. Development consistent with the proposed Land Use Element Update would result in patterns of development that differ from existing development patterns, resulting in impacts related to both traffic patterns and changes in land use compatibility.	Land Use Element Policies 3A, 3B, 3C, 6B, 14A	Growth Management Policies II.E.1 and II.E.2	None identified.	LS
Land Use 3: Development consistent with the Land Use Element Update could result in development in areas not adequately served by the necessary public services, including storm drainage, water and wastewater treatment.	Refer to Mitigation Measures Proposed as Part of the Project in Section IV.F, Public Services and Utilities.	Growth Management Policies III.F.1, III.F.2 and III.F.3 Please see also Mitigation Measures identified in other General Plan Element in Section IV.F, Public Services and Utilities.	Refer to Section IV.F, Public Services, for mitigation measures that address adequacy of public utilities.	LS

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IV.B Transportation and Circulation				
Transportation-2: Traffic generated by development consistent with the proposed Land Use Element would increase volumes at other intersections in Hercules.	Land Use Element Goal: Preserve and enhance the community's quality of life with well balanced growth and development. Land Use Element Objectives 2, 3, 11, 12, 13; Policies 2A, 2B, 3A, 3B, 3C, 3D, 11A, 11B; Programs 3A.1, 3A.2 Circulation Element Objectives 2e, 2f, 2h; Policies 2a, 2e; Implementation Actions 6, 7, 9, 10, 11, 14	Growth Mangement Element, Goal C.1, Goal C.2, Goal C.3, Goal C.4; Implementing Policy/Program E.2, E.4, E.5, E.6, E.7, E.8, E.9, E.10	Transportation-2a: The City shall design and construct the proposed Sycamore/Claeys intersection and constructed such that there is adequate space between this intersection and the proposed Claeys/SR 4 EB Ramp intersection to allow for potential signalization of the Sycamore/Claeys intersection. Transportation-2b: If the level of service at the unsignalized Sycamore/Claeys intersection, once constructed, were LOS E or worse, as projected by this analysis, the City would install a traffic signal at this intersection.	LS
IV.D Vegetation and Wildlife				
Biology-1: Introduction of invasive non-native species used in landscaping would be detrimental to the native habitats within the Hercules General Plan Update project area.	Land Use Element Objective 14; Program 14A.3	None identified.	Biology-1a: The City shall require that native plants from local area be used in landscaping, and in areas with a lower water table, native drought tolerant species shall be used in landscaping.	LS

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Biology-2: Seasonal freshwater wetlands would be directly affected (lost or damaged) by development within the Land Use Element Update study area.	Land Use Element Program 14A.3	Open Space/Conservation Element Objective V.C.1c	Biology 2a: The City shall require project proponents to design construction footprints to avoid any wetlands and place 100-foot buffer zones around the wetlands in the project area, or as determined by CDFG or the COE. If avoidance is not possible projects shall be redesigned so as to impact the least amount of wetlands. Any areas that are classified as wetlands and would be affected by project development shall be recreated either on or off site in accordance with CDFG and COE. Biology 2b: Prior to construction in areas of wetlands, the City shall support CDFG and Corps permitting process. A project sponsor shall be required to obtain a Streambed Alteration Agreement from CDFG and/or a Section 404 Corps permit prior to any development within any wetland. Biology 2c: If flood control improvements are required along Refugio Creek the City shall direct the Corps to create the flood control area wide enough to provide for establishment within the flood control area of native vegetation to provide for wildlife habitat. The City shall allow a transition area between proposed land uses and this natural community, as described in Program 13B of the proposed Land Use Element.	LS

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Biology-3: Development of Parcel A would directly encroach upon the Refugio Creek riparian corridor.	Land Use Element Objective 14; Program 14A.3	Open Space/Conservation Element Objective V.C.1c	Biology-3a: Prior to construction in areas of riparian corridors or wetlands, the City shall support CDFG and Corps permitting process. A Streambed Alteration Agreement from CDFG and/or a Section 404 Corps permit shall be obtained by the project applicant prior to any development within any creek or discharge of fill into any creek. Biology-3b: Design of building footprints along any riparian corridors shall be outside the 100-foot buffer zone (from the top of the bank, 50 feet on each side). Sensitive riparian habitats shall be marked by a qualified biologist to deter any destruction by equipment during construction. Biology-3c: Development along any riparian corridor shall incorporate measures to avoid impacts during construction, including: i) Construction of any access bridge shall be limited to the bridge footprint area only. ii) Parking of large equipment shall be on the upland grassland area or on the paved street. Construction workers cars shall have designated parking areas. iii) Basins for oil leaks from the equipment shall be installed if equipment is parked on-site over night.	LS

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Biology-4: The proximity of development to riparian and wetland communities could cause degradation of these communities through introduction of urban pollutants in stormwater runoff.	Land Use Element Objective 14; Program 14A.3	Growth Management Policy III.E.5	Biology-4a: The City shall require project proponents to design facilities to prevent degradation of riparian and wetland communities from urban pollutants in storm runoff. Biology-4b: To minimize pollution downstream from sedimentation, the City shall require installation of sedimentation and grease basins in the storm drain system in parking lots in accordance with NPDES regulations and shall require that property owners maintain the basins annually, or as required by NPDES regulations. Parking lots shall be swept periodically to decrease the amount of debris that could potentially contaminate the riparian or wetland habitat.	LS
Biology-5: Development on Parcels 1 and 2 under the updated Land Use Element could result in the disturbance of salt marsh zones along San Pablo Bay, due to the proximity of urbanization.	Land Use Element Objective 14	Open Space/Conservation Element Objectives V.C.1.b and V.C.1c	Biology-5a: The city shall review development proposals for consistency with minimizing impacts to salt marsh zones. The City shall incorporate the following policies and programs for development near San Pablo Bay: Buildings shall be located on existing developed or graded areas, where practicable.	

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Biology-6: Habitat for several special status plant and animal species would be affected by construction within development areas in the study area.	None identified.	None identified.	• The City shall work with CDFG, BCDC, East Bay Regional Park District, and the Corps to determine appropriate buffer zones along the Bay to protect tidal habitat when designing a bay access trail linkage between Pinole and Rodeo. Public access and pedestrian pathways shall be limited within the buffer zone, and when possible, located along the edges of the buffer zone. Bicycles shall be encouraged to stay on bike paths through the use of signage and fencing. • The City shall require developers to provide signage and fencing to enforce leash laws around remaining areas of sensitive habitats such as salt marsh wetlands and mud flats. Biology-6a: For projects not exempt from the California Environmental Quality Act, the City shall continue to utilize environmental review under CEQA to review development and for impacts on sensitive species and their habitat. Biology-6b: The City shall require that development within the General Plan area incorporate features to preserve foraging habitat for wildlife.	

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			Biology-6c: Areas that could provide habitat for sensitive species shall be surveyed by qualified biologists provided by project sponsors prior to project design. Surveys in sensitive areas would have to be conducted prior to any development. Sensitive areas within the study area includes eucalyptus groves, freshwater wetlands and adjacent trees, open grasslands, ponds and creeks, and buildings which are abandoned or slated for destruction. If any species is present, coordination with the CDFG will be required for mitigation of impacts and redesigning of the project footprint to avoid any sensitive species or sensitive habitat. If avoidance is unavailable coordination with the CDFG will be required for relocation of these species and for determining replacement of habitat. i) If monarch butterfly is present, eucalyptus groves within the development should be retained to the extent feasible. ii) Surveys for Ricksecker's water scavenger beetle, red-legged frog, and northwestern and southwestern pond turtle should be conducted by a qualified biologist in all ponds prior to development.	

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			iii) If surveys find nesting black-shouldered kite, loggerhead shrike, or saltmarsh yellowthroat are present in trees along the freshwater marsh or in grasslands, respectively, suitable replacement foraging habitat should be evaluated for nesting availability. Construction should be timed to occur after the fledging seasons of the kite (June through August), the shrike (March through August), and the saltmarsh yellowthroat (April to mid-July), before the pairing season in February. iv) Surveys for Pacific western big-eared bat shall be conducted during the spring and winter seasons to determine if nursery colonies or winter colonies occur in the building. If individuals are found within the building during springtime, destruction of the building shall commence in August when the young have left with the females. If a winter roost occurs in the building blockage by a qualified pest control operator shall be conducted prior to destruction of the building. The City shall condition approval of individual development proposals on implementation of the following programs:	

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			Biology-6d: As much open space as possible within sites proposed for development shall be retained as informal open space for wildlife habitat, rather than as formal, landscaped parks or grounds. Wildlife areas shall be revegetated with native or non-native grassland and native species of shrubs requiring no irrigation and little management beyond the first year after planting. Biology-6e: Wildlife habitat shall be consolidated into "preserves" that are as large as possible. Biology-6f: Habitats on adjoining parcels shall be as contiguous as possible, to create wildlife corridors. Biology-6g: Wildlife open space shall be placed adjacent to other wildlife habitat, to preserve the greatest ecological value. Biology-6h: Public access to wildlife habitat shall be minimized by placing trails close to buildings so as to provide the largest area of habitat possible with the least amount of impact from the public.	
Biology-7: Loss of open space within the Hercules City Limits would have a cumulative adverse impact on wildlife.	None identified.	None identified.	Biology-7a: Open space areas shall be designed into the footprint of proposed projects and shall be located adjacent to existing open space areas, providing a larger continuous area for wildlife to use.	LS

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IV.E Visual Quality				
Visual-1: Implementation of the proposed land use designations could result in development that impairs the existing scenic quality of the upper drainage and lower drainage ridges, plateaus and floodplain.	Land Use Element Policy 6B, Objective 7, Program 7A.1	Open Space/Conservation Element Measures V.3.b1, V.3.b3, V.3.b4	Biology-7b: Open space areas, if disturbed during construction, shall be landscaped with native species. Biology-7c: Trails, if any, shall be placed close to buildings so as not to disturb wildlife nesting/denning areas. Visual-1a: Development proposals should be reviewed in terms of natural objects in the vicinity that have aesthetic significance. This may include open space, eucalyptus groves, or vegetation that serves as a view corridor or has important visual attributes. Development proposals should be sited to ensure that these features are retained, resulting in minimal view impairment. Visual-1b: Plantings that serve to screen views of residential development, or that help to maintain a natural-appearing landscape, should be retained to the extent feasible. Such plants could be thinned selectively if thinning would improve view corridors. Visual-1c: Preserve the wooded tree-lined character of the proposed hiking/biking trail along Refugio Creek west of I-80.	LS

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Visual-2: Adoption of the proposed land use designations could result in development that could result in obstruction of scenic vistas and views open to the public.	Land Use Element Objective 7		Visual-2a: Development should preserve important view corridors by identifying and preserving the attributes of the view corridor that characterize its significance (e.g. framing elements, surface water reflections, presence or absence of impinging details) as seen from roadways, pedestrian paths or other public vantage points to avoid view obstruction. The following views, from publicly accessible viewpoints, should be preserved as the City evaluates new development on a parcel-specific basis: • Upper drainage views from higher elevations of Parcel 13 easterly up the floor of Franklin Canyon. • Lower drainage views from Hercules Point north across open water to Lone Tree Point and beyond to Solano and Napa Counties. • Lower drainage ridge views from the promontory of San Pablo Bay, Lone Tree Point, Franklin Canyon and the Refugio Creek floodplain. • San Pablo Avenue views of specimen oak tree stands and, where feasible, of Eucalyptus.	LS

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Visual-3: Development in the upper drainage valleys, lower drainage floodplain and plateaus could introduce additional light and glare.	None identified.	None identified.	- Views of San Pablo Bay and the Hills of Marin, Sonoma and Napa Counties, and inland of the Briones Hills, that are available from various elevation points on Parcels 2, 3, 4, 5, 6, 7, and C and from the shoreline areas of Parcels 1, 2, and 6. - Views from the former Hercules Powder Company offices on the promontory to the west, north and east. Visual-3a: The City of Hercules should evaluate the light and glare potential of new development on a parcel specific basis and apply the following measures: - Screening of parking areas by using vegetation or trees. This would reduce the amount of glare generated from painted and chrome automobile surfaces and prevent expanses of stationary and moving automobiles. - Hooded lights for nighttime illumination should be used for parking areas, shipping and receiving docks and industrial development. Hooded lights direct the light beam towards the ground, which if a dark pavement, will not reflect light and cause spillage into neighboring uses.	LS

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IV.F Public Services and Utilities				
Fire-1: Development consistent with the proposed Land Use and Circulation Elements Update would result in increased demand on the Rodeo-Hercules Fire Protection District services in the City.	Land Use Element Programs 2C.1 and 3A.3; Objective 3	Growth Management Element Performance Standard III.E.1. Seismic Safety/Safety Element Policies VI.C.14.d.1, VI.C.14.d.3, VI.C.14.d.4; Implementation Programs VI.D.2.a, VI.D.2.b, VI.D.2.e	Regular windows should be used instead of the glass walls or massive reflective windows often used for research and development, and office park developments. The City shall add the following policies or implementation programs to the Land Use Element Update: Fire-1a: The City shall assist the Rodeo-Hercules Fire Protection District in processing the collection of fire impact fees from all new development within the District. Fire-1b: The City shall work with the Rodeo-Hercules Fire Protection District to determine specific needs for fire protection when a particular development proposal is reviewed and ensure the District's needs are met.	LS
Police-1: Development consistent with the proposed Land Use and Circulation Elements Update would result in increased demand on police services in the City.	Land Use Element Programs 2C.1 and 3A.3; Objective 3	Growth Management Element Performance Standard III.E.2. Seismic Safety/Safety Element Implementation Program VI.D.2.e Economic Development Element Objective II.C.2	None identified.	LS

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Water-1: Development consistent with the Land Use and Circulation Elements Update would increase demand for potable water and could require additional delivery and/or storage facilities.	Land Use Element Programs 2C.1 and 3A.3; Objective 3	Growth Management Element Performance Standard III.E.6. Open/Space Conservation Element, V.B.2.b	Water-1a: The City shall include in the proposed Land Use Element Update the following programs under Policy 3A: • Ensure that the new development pays its share of the costs associated with the provision of facilities for water by attaching project-specific mitigation requirements as conditions of approval. • The City shall cooperate with East Bay Municipal Utility District planning efforts to help ensure an adequate water system for existing and future residents and to maintain adequate water reserves. • Encourage effective water conservation practices by residents and businesses including household conservation and use of drought-resistant landscaping and reclaimed wastewater. • The City will practice water conservation in management of parks and requirements for landscape design development. The City shall condition approval of individual development proposals on the following implementation programs: Water-1b: The City shall require the installation of low-flush toilets and other low-flow plumbing fixtures for new residential and commercial development.	LS

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Wastewater-1: Development consistent with the proposed Land Use and Circulation Elements Update would increase the demand for wastewater treatment.	Land Use Element Programs 2C.1 and 3A.3; Objective 3	Growth Management Element Performance Standard III.E.4. Economic Development Element Objective II.C.2; Program III.A.1	Wastewater-1a: The City shall include in the proposed Land Use Element Update the following program under Policy 3A: - The City shall ensure that new development funds its share of the costs associated with the provision of wastewater treatment facilities by attaching project-specific mitigation as conditions of approval. Prior to development on any of the parcels, the City shall implement the following programs: Wastewater-1b: The City shall initiate the wastewater treatment study discussed above, and shall implement programs to ensure adequate wastewater treatment capacity prior to approval of development that would generate demand for treatment in excess of capacity, including increased capacity improvements now planned. This study shall include the following information: - Inventory of existing facilities, including collection systems, treatment plants, and pumping stations. [This inventory has been accomplished as part of the planning for improvements described in the Setting.]	LS

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			• An alternative analysis of the City's three options to treat additional wastewater expected at buildout of the proposed Land Use Element Update. • Identification of funding sources. • Coordination with the City of Pinole, EBMUD and other agencies involved in wastewater treatment and/or water reclamation. • Appropriate uses of reclaimed water within the City. Wastewater-1c: The City shall implement a Capital Improvement Program (CIP) for the selected wastewater treatment alternative(s). The CIP shall include funding, scheduling and development programs for the selected alternative.	
IV.G Hazardous Materials				
Hazard-1: Cleanup of hazardous materials or wastes currently in the project area could pose a threat to workers or the environment.	None identified.	None identified.	Hazard-1a: At every potentially contaminated location to be developed within the City, the project applicant shall have the site inspected by a Registered Environmental Assessor (i.e. a professional environmental scientist or engineer registered as an REA in California) for the presence of hazardous materials and wastes.	LS

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IV.H Cultural Resources	Land Use Element Policy 8A; Programs 8A.1 and 8A.2	None identified.	Hazard-2e: No buildings, pavement, landscaping, or other development shall be installed in any pipeline right-of-way, nor within ten feet of any pipeline right-of-way.	
			Hazard-2f: The City shall consider establishing a buffer zone that would separate future residential development from existing petroleum and natural gas pipeline rights-of-way.	
Cultural-1: Development consistent with the proposed Land Use and Circulation Elements Update could result in damage to known or unknown prehistoric archaeological resources.			Cultural-1a: Prior to development on Parcels 1 - 4, A and C, an attempt should be made through a combination of archival research and in-field testing to identify areas that may have been used by Native American populations. Areas containing prehistoric deposits would be mapped; evaluation of their significance would follow only in those areas where future development might affect the resources (Holman, 1991)	LS

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			Cultural-1b: The City should enact the following program prior to any development in the vicinity of CA-CCO-370 and CA-CCO-248 on Parcels 1 and I, respectively. The program shall be conducted under the guidance of Appendix K of the CEQA <i>Guidelines</i>. The program would also apply to Parcels A, C, and 1-4, where the potential for Native American remains exists. • Prior to excavation and construction on the above parcels, the prime construction contractor and any subcontractor(s) would be cautioned on the legal and/or regulatory implications of knowingly destroying cultural resources or removing artifacts, human remains, bottles, and other cultural materials from the project site. • The project sponsor would identify a qualified archaeologist prior to any demolition, excavation, or construction. The City would approve the project sponsor's selection for a qualified archaeologist. The archaeologist would have the authority to temporarily halt excavation and construction activities in the immediate vicinity (ten-meter radius) of a find if significant or potentially significant cultural resources are exposed and/or adversely affected by construction operations.	

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			• Reasonable time would be allowed for the qualified archaeologist to notify the proper authorities for a more detailed inspection and examination of the exposed cultural resources. During this time, excavation and construction would not be allowed in the immediate vicinity of the find; however, those activities could continue in other areas of the project site. • If any find were determined to be significant by the qualified archaeologist, representatives of the construction contractor and the City, the qualified archaeologist, and a representative of the Native American community (if the discover is an aboriginal burial) would meet to determine the appropriate course of action. • All cultural materials recovered as part of the monitoring program would be subject to scientific analysis, professional museum curation, and a report prepared according to current professional standards.	

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			Cultural-1c: If previously unknown subsurface cultural resources are discovered during excavation activities on the identified parcels or elsewhere in the study area, excavation would be temporarily halted and an archaeologist consulted as to the importance of the resources. Should the archaeologist determine that the resources are important, the project sponsor would follow the procedure described in Mitigation Measure Cultural-1b.	
Cultural-2: Development consistent with the proposed Land Use and Circulation Elements Update could result in damage to known or unknown historic archaeological resources.	None identified.	None identified.	Mitigation Measures Cultural-1b and Cultural-1c would also apply to future development proposals for Parcels A, C, and I.	LS
Cultural-3: Development consistent with the proposed Land Use and Circulation Elements Update could result in damage to known historical resources.	Land Use Element Policies 8A.1 and 8A.2	None identified.	Cultural-3a: Prior to development on Parcels 1 and C, the City should initiate an architectural evaluation of the remaining Hercules Powder Company buildings. Since the architectural evaluation was done in 1977, the State Historic Preservation Office has altered its definition of what is historically significant. At present any structure 45 years or older may qualify as significant under CEQA (Holman & Associates, 1991). The elements of architectural evaluation program should include:	LS

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			• An architectural evaluation of remaining company buildings by a qualified architectural historian. • A determination of whether the remaining buildings are eligible for listing in the National Register of Historic Places. • On the basis of the above findings, the City should take action to commit the eligible buildings to permanent conservation by having them listed in the National Register of Historic Places. The City could encourage adaptive reuse of listed buildings, including historically sensitive restoration, as a means of preserving eligible structures. Restoration and renovation of buildings should be performed in accordance with the "Secretary of the Interior's Standards for the Treatment of Historic Properties." The standards serve as guidelines for rehabilitation, restoration, preservation, retaining and preserving historic character of the property. • If the above findings show that a building is not eligible for the National Register of Historic Places, then the following measure should be implemented: Prior to development on many of the 24 parcels, a Phase II historic resources evaluation shall be conducted. Development is defined here as:	

TABLE II.1: SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

B. SIGNIFICANT BUT MITIGABLE IMPACTS

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			Significant changes to building uses and/or land uses; The construction of new buildings; Significant exterior alterations to existing buildings, including demolition; or An increase in development intensity on a parcel. If a Phase II evaluation identifies historic resources on a parcel, appropriate mitigation measures shall be incorporated into the project design using widely accepted standards for historic resources management, such as the <i>Secretary of the Interior's Guidelines for Rehabilitation</i> and the State Historic Building Code.	

LS=Less than Significant

TABLE II.1: SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

B. SIGNIFICANT BUT MITIGABLE IMPACTS

SIGNIFICANT IMPACT	MITIGATION PROPOSED AS PART OF THE PROJECT	MITIGATION IDENTIFIED IN OTHER GENERAL PLAN ELEMENTS	MITIGATION IDENTIFIED IN THIS EIR	RESIDUAL IMPACT
IV.I Hydrology and Water Quality				
Hydrology-1: Development consistent with the proposed Land Use and Circulation Elements Update would place structures and an increased population in areas already subject to 100-year flooding from Refugio Creek and from coastal storms. Additionally, construction of new impermeable surfaces could increase runoff and contribute to flooding.	Program 13B	Growth Management Element Performance Standard III.E.7. Seismic Safety/Safety Element Policies C.2.e.1, C.2.e.2, C.2.e.3, C.2.e.4 and C.2.e.5	Hydrology-1a: The City shall review and refine, as necessary, its Master Drainage Plan, including specifics for drainage on individual parcels (except those such as Parcel 6 which already have a drainage infrastructure), prior to approval of any development in the study area. This is an important measure since the City's wastewater system is at capacity, and since new drainage infrastructure would have to be built to accommodate the increase in runoff. Hydrology-1b: For each proposed development project, runoff increase calculations for the parcel at full build-out should be measured against estimates of existing runoff to ensure that no flooding would result.	LS

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TABLE II.1: SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

B. SIGNIFICANT BUT MITIGABLE IMPACTS

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Hydrology-2: Development under the Land Use and Circulation Elements Update could result in increased non-point-source and point-source pollution of surface waters from construction activity and vehicle use.	None identified.	None identified.	Hydrology-2a: Develop a Master Water Quality Control Plan for the City, including measures to clean up existing contaminated water resources in various parcels, to identify and remove or mitigate existing sources of pollution, and to develop ways of preventing further pollution such as specific water treatment policies for industries and retention basins for surface runoff suspected of carrying roadway pollutants. Such a plan must be approved by the City Engineer and should be reviewed by the Regional Water Quality Control Board and State Department of Water Resources for correctness and thoroughness, prior to implementation. Hydrology-2b: Develop a set of best management practices (BMPs) for developers to follow. Implementation of best management practices by the developers would further help to mitigate this impact. Such practices include, but are not limited to: • Use of stormwater retention or detention structures; • the use of oil and water separators; and • The use of sediment traps.	LS

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TABLE II.1: SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

B. SIGNIFICANT BUT MITIGABLE IMPACTS

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Particles of sediment adsorb many of the heavy metal pollutants from automobile exhaust, as well as trapping oil and grease within their pores. Through use of water separators, and sediment traps in conjunction with settling basins, many of the pollutants could be removed.				
IV.J Geology and Soils				
Geology-1: Development consistent with the proposed Land Use and Circulation Elements Update would involve construction of facilities in a seismically active zone, characterized by a high probability of strong ground shaking. Ground shaking could pose a threat to the structural integrity of any developed structures and associated underground utility lines, as well as a threat to the welfare and safety of people occupying the sites.	Land Use Element Program 8A.1	Seismic Safety/Safety Element Policies C.1, C.2, C.3, C.4, C.5, C.6, C.7, C.8, C.9, C.10, C.11, C.12, C.13, and C.14, Implementation Actions 2.a and 2.b	Geology-1a: Require critical facilities (emergency response centers, fire and police stations, and hospitals), high-population facilities (schools, malls, or shopping centers), or industries using or generating significant amounts of hazardous materials, to be sited outside of areas subject to very strong ground shaking (such as over bay muds). Geology-1b: Prepare or update an Earthquake Preparedness and Emergency Response Plan for the City to deal with the specific effects of seismic-induced ground shaking, liquefaction, and lurching. Geology-1c: Require site-specific geotechnical investigations for every new development.	LS

TABLE II.1: SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

B. SIGNIFICANT BUT MITIGABLE IMPACTS

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Geology-2: Development consistent with the proposed Land Use and Circulation Elements Update would involve grading that would disrupt, compact, and overcover existing soil. This could alter the capacity of native soils to absorb precipitation and runoff and increase their erosion potential.	None identified.	Implementation of the Seismic Safety/Safety Element contained in the City's <i>General Plan</i> (described under Mitigation Measures for Impact Geology-1 would help reduce the impact to a less-than-significant level.	Geology-2a: Development of the project sites should minimize the amount of native soils compacted by construction vehicles and structures, as well as the amount of soil disturbed through grading and excavation. As much as possible, native soils should be left undisturbed and used for open space and landscaping purposes. Geology-2b: Development of the project sites should also maximize the use of pervious materials, including fill, and incorporate proper drainage structures capable of handling anticipated increases in surface runoff. Geology-2c: Minimize amount of grading when building on hill sides.	LS
Geology-3: Development consistent with the proposed Land Use and Circulation Elements Update would accelerate natural erosion of native soils and fill by wind and water. If uncontrolled, increased erosion could undermine structures built upon the study area parcels. Eroded materials could also increase sedimentation in nearby Refugio Creek and in San Pablo Bay.	None identified.	Seismic Safety/Safety Element Policies C.2, C.3, C.5, C.6, C.12, C.13 and C.14	Geology-3a: No grading should occur on slopes steeper than 30 percent, and cut slope angles no greater than 33 percent be maintained (Griggs and Gilchrist, 1977). Geology-3b: The use of silt fencing, sediment trapping basins, runoff diversion devices, and hydroseeding of barren slopes can minimize or prevent this impact. It is recommended that applicants for construction permits within the City of Hercules submit an erosion control plan for the proposed development site, based on soil and underlying substrate conditions and using criteria obtained from the City's Grading Ordinance.	LS

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B. SIGNIFICANT BUT MITIGABLE IMPACTS

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Geology-4: Development consistent with the proposed Land Use and Circulation Elements Update could result in changes in topography and construction on steep slopes in some portions of the study area that would accelerate the development of landslides or mudslides.	Land Use Element Policy 6A	Seismic Safety/Safety Element Policies C.5, C.6, C.7, C.8, C.12, C.13 and C.14	Grading in the City should occur with no increase in discharge of sediments to wetlands, Refugio Creek, or San Pablo Bay. Measures to be implemented by the developers should be identified in their erosion and sediment control plans, as required by the City's Grading Ordinance. Measures identified in the report should be incorporated as conditions of approval for the development. Geology-4a: Develop and implement hillside drainage plans to reduce the risk of further movement by existing landslides. Site new structures away from steep hillsides and the toes of existing landslide surfaces, reducing the potential for damage from landslide movement or burial. Require potential developers to perform site-specific slope stability analyses, including field estimation of the soil properties significant to slope stability, for those parcels or portions thereof identified as having the steepest slopes or greatest potential for landslides. In addition, the City should add the following policies to the proposed Land Use Element Update: Geology-4b: Develop the study area parcels in such a way as to minimize the potential for creating new landslides or reactivating old ones.	LS

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Geology-5: Development consistent with the proposed Land Use and Circulation Elements Update could expose people and structures to the hazard of differential settlement.	None identified.	Seismic Safety/Safety Element Policies C.1, C.4, C.10 and C.11	Geology-5a: Place buildings and other structures on pile supports sunk and anchored to bedrock beneath fill, alluvium or muds.	LS
Geology-6: Development consistent with the proposed Land Use and Circulation Elements Update would result in construction on soils with high shrink-swell potential and corrosive potential, which could cause cracking of foundations and corrosion of concrete.	None identified.	Seismic Safety/Safety Element Policies C.1, C.4, C.9, and C.11	Geology-6a: Applicants for development of structures within the City of Hercules shall submit a report by a California certified engineering geologist documenting the geotechnical suitability of the site for the proposed development based on soil and underlying substrate conditions; and the measures required to ensure public safety and the protection of property.	LS
IV.K Air Quality				
Air-1: Fugitive dust generated by construction and demolition activities under the Land Use and Circulation Elements Update would add to ambient PM ₁₀ levels.	None identified.	Economic Development Element Policy 3, Program 3	Air-1a: The elements of the dust abatement program include the following dust control measures: • Sprinkle all construction areas with water (recycled when possible) at least twice a day, during excavation and other ground-preparing operations, to reduce fugitive dust emissions. Wetting could reduce particulate (dust) emissions by up to 50 percent.	LS

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			- Cover stockpiles of sand, soil, and similar materials, or surround them with windbreaks. This measure would substantially reduce wind erosion of stockpiled materials during demolition, and construction, reducing the potential of the project to contribute to excessive suspended particulate (dust) concentrations when the wind exceeded 10 miles per hour. - Cover trucks hauling dirt and debris to reduce spillage onto paved surfaces. - Post signs that limit vehicle speeds on unpaved roads and over disturbed soils to 10 miles per hour during construction. - Use canvas drapes to enclose building floors during the application of mineral-based fiber insulation to structural steel frames. - Sweep up dirt and debris spilled onto paved surfaces immediately to reduce resuspension of particulate matter through vehicle movement over those surfaces. - Require the construction contractor to designate a person or persons to oversee the implementation of a comprehensive dust control program and to increase watering, as necessary.	

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Air-2: Exhaust emissions from construction equipment would increase criteria air pollutant emissions during the construction periods for individual projects under the proposed Land Use and Circulation Elements Update.	None identified.	None identified.	Air-2a: Require construction contractors to maintain and operate construction equipment so as to minimize exhaust emissions. All internal combustion engines should be kept well-tuned with regular and periodic inspection and maintenance checks to minimize exhaust emissions. During construction, trucks and equipment should be running only when necessary. Air-2b: Require that construction of large projects be timed to avoid significant periods of overlap.	LS
IV.L Noise				
Noise-1: Development consistent with the Land Use and Circulation Elements Update would result in temporary noise impacts related to construction activities.	None identified.	Noise Element Objective 1.d	Noise-1a: Require that noisy construction activities be scheduled for periods, such as between 8 a.m. and 6 p.m. on weekdays, when loud noises would have the least impact on adjacent residents and workers. Noise-1b: Develop a construction schedule that minimizes potential cumulative construction noise impacts and accommodates particularly noise-sensitive periods for nearby land uses (e.g., for schools, churches, etc). Noise-1c: Require that holes for driven piles be pre-drilled to reduce the level and duration of noise impacts.	LS

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			Noise-1d: Construct temporary, solid noise barriers between source and receiver to reduce off-site propagation of construction noise. This measure could reduce construction noise by up to five decibels. Noise-1e: Require internal combustion engines used for construction purposes to be equipped with a properly operating muffler of a type recommended by the manufacturer. Also, require impact tools to be shielded per manufacturer's specifications.	
Noise-2: Development consistent with the Land Use and Circulation Elements Update would result in a long-term increase in traffic noise levels along the City road network.	Circulation Element Objectives 2.b and 2.g	Noise Element Implementation Measures 2.a, 2.d, and 3	Noise-2a: The City shall limit truck traffic to between 7:00 am and 6:00 pm and prohibit heavy-duty diesel trucks on Hercules Avenue.	LS
Noise-3: Noise from stationary sources developed under the Land Use and Circulation Elements Update could raise ambient noise levels above City standards.	None identified.	The following measures are from the City's Noise Element: "Normally Unacceptable" Land Use Compatibility: New construction or development should generally be discouraged. If new	Noise-3a: As discussed in Impact Noise-1, the City could revise the Municipal Code to include a Noise Ordinance. The Noise Ordinance would encourage the scheduling of noisy activities during normal business hours so that they would have the least interrupting and intrusive effect at nearby residential land uses.	LS

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		construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features must be included in the design. Outdoor areas must be shielded.	Noise-3b: The City shall review new development proposals for noise sources that could impact existing land uses. Proposed projects must demonstrate that any new noise sources would not impact existing land uses.	
		Implementation Measures 1.a-1.b, 2.b, 2.c, 2.e, and 2.f		
Noise-5: Development consistent with the proposed Land Use and Circulation Elements Update would expose future noise-sensitive land uses to traffic and railroad noise above the City's recommended standards.	Circulation Element Objectives 2.b and 2.g; Policies 2.b and 2.c	Noise Element Implementation Measures 1.a, 1.b, 2.a, 2.b, 2.c, 2.d, 2.e, 2.f, 3, and the "Normally Unacceptable" Land Use Compatibility guideline identified above.	Mitigation Measure Noise-2a identified above.	LS

LS=Less than Significant

SOURCE: Environmental Science Associates, Inc.

TABLE II.1: SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

C. LESS-THAN-SIGNIFICANT IMPACTS

IMPACT	MITIGATION PROPOSED AS PART OF THE PROJECT	MITIGATION IDENTIFIED IN OTHER GENERAL PLAN ELEMENTS	MITIGATION IDENTIFIED IN THIS EIR	RESIDUAL IMPACT
IV.B Transportation and Circulation				
Transportation-4: Policies included in the proposed Circulation Element Update could result in increased use of alternatives to the single-occupancy vehicle.	No additional mitigation required.	No additional mitigation required.	No additional mitigation required.	NA
Transportation-5: Development that would occur pursuant to the proposed Land Use and Circulation Elements Update could encourage walking and bicycle use.	No additional mitigation required.	No additional mitigation required.	No additional mitigation required.	NA
Transportation-6: Traffic generated by development consistent with the proposed Land Use Element would contribute to congestion on local roadways.	No additional mitigation required.	No additional mitigation required.	No additional mitigation required.	NA

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IV.C Population and Housing				
Population-1: Development consistent with the proposed Land Use Element would increase the number of jobs relative to employed residents, thereby decreasing the jobs/housing imbalance.	Land Use Element Objectives 1-3, 5, 6, 11; Policies 5B and 5C; Programs 5B.1, 5B.2, and 5C.1	Housing Element Goal 1; Policies 1.2 and 2.2	None identified.	NA
IV.E Visual Quality				
Visual-4: Development consistent with the proposed Land Use Element could degrade objects having aesthetic or historical significance.	Land Use Element Objective 8; Policy 8A; Programs 8A.1 and 8A.2	None identified.	Visual-4a: The City would review development proposals on a project-specific basis. New development would be expected to comply with the City's Design Guidelines.	NA
IV.F Public Services and Utilities				
Storm Drainage-1: Development consistent with the proposed Land Use and Circulation Elements Update would increase the demand for stormwater collection and, potentially, treatment.	Land Use Element Programs 2C.1 and 3A.3; Objective 3	Growth Management Element Performance Standard III.E.5 Economic Development Element Objective II.C.2	Storm Drainage--1a: The City shall include in the proposed Land Use Element Update the following program under Policy 3A: The City shall ensure that new development funds its share of the costs associated with the provision of storm drainage facilities by attaching project-specific mitigation as conditions of approval.	NA

NA=Not Applicable

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			The City shall condition approval of individual development proposals on the following implementation programs (identified in the Hydrology and Water Quality analysis in this report [Section IV.I]): Storm Drainage-1b: The City shall review and refine, as necessary, its Master Drainage Plan, including specifics for drainage on individual parcels (except those such as Parcel 6 which already have a drainage infrastructure), prior to approval of any development in the study area. This is an important measure since the City's wastewater system is at capacity, and since new drainage infrastructure would have to be built to accommodate the increase in runoff. Storm Drainage-1c: Develop a Master Water Quality Control Plan for the City, including measures to clean up existing contaminated water resources in various parcels, to identify and remove or mitigate existing sources of pollution, and to develop ways of preventing further pollution such as specific water treatment policies for industries and retention basins for surface runoff suspected of carrying roadway pollutants. Such a plan must be approved by the City	

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Solid Waste-1: Development consistent with the Land Use and Circulation Elements Update would increase the demand for solid waste services.	Land Use Element Programs 2C.1 and 3A.3; Objective 3	Economic Development Element Program III.E.5	Engineer and should be reviewed by the Regional Water Quality Control Board and State Department of Water Resources for correctness and thoroughness, prior to implementation. Storm Drainage-1d: Develop a set of best management practices (BMPs) for developers to follow. The City shall condition approval of individual development projects on the following mitigation measure: Solid Waste-1a: Prior to development on any of the 24 parcels, the City shall consult with Richmond Sanitary Service to confirm that adequate capacity exists for solid waste that would be generated by the project. Solid Waste-1b: Prior to development on any of the 24 parcels, the City shall require that projects sponsor(s) demonstrate that project include adequate recycling facilities.	NA
Public Works-1: Development consistent with the Land Use and Circulation Elements Update would increase the demand for street maintenance and other public works services.	Land Use Element Programs 2C.1 and 3A.3; Objective 3	Economic Development Element Objective II.C.2	Prior to project approval, the City would initiate expansion of the Landscaping and Street Lighting benefit assessment district to encompass all study area parcels not currently included within the district.	NA

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Government-1: Development consistent with the Land Use and Circulation Elements Update would increase the demand for community development and general government services.	Land Use Element Programs 2C.1 and 3A.3; Objective 3	Economic Development Element Objective II.C.2	None identified.	NA
IV.G Hazardous Materials				
Hazard-3: Development consistent with the Land Use and Circulation Elements Update would indirectly allow for the potential increased handling of hazardous materials and the potential increased generation of hazardous wastes by new industrial and commercial facilities occupying areas of the City designated and zoned for such uses.	None identified.	The City of Hercules <i>Hazardous Waste Management Plan</i> Policy, Sec. 4.3; Program, Sec. 4.4	Hazard-3a: The City shall ensure that use, storage, and handling of hazardous materials by businesses and industries within the project area is done in compliance with applicable City policies as well as State and local laws, guidelines, and regulations. Hazard-3b: Residents adjacent to new hazardous materials handling facilities shall be notified immediately by the City emergency response organizations of any accidental occurrences such as spills, leakages, or eruptions which may affect the health, safety and welfare of the public. Hazard-3c: New businesses in the project area shall be required to install their temporary hazardous waste storage areas on paved, impermeable surfaces with drainage controls and spill containment features.	NA

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Hazard-4: Development under the Land Use and Circulation Elements Update would result in increase in the generation, storage, and disposal requirements of household hazardous wastes.	None required.	The City of Hercules <i>Hazardous Waste Management Plan</i> Policy, Sec. 4.3	Hazard-3d: Waste stored temporarily at generator facilities shall be segregated by hazard category and stored in individual, sealed storage containers. Separate containers shall be used for flammables, acids, bases, poisons, and reactive wastes. None required.	NA
Hazard-5: Implementation of the proposed Land Use and Circulation Elements Update would result in locating hazardous materials adjacent to sensitive receptors.	Land Use Element Policies 3B.1 and 13A; Objective 13	The City of Hercules <i>Hazardous Waste Management Plan</i> Program, Sec. 4.4	None required.	NA

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Hazard-6: Transport of hazardous materials and wastes would result indirectly in greater potential for accidents involving hazardous materials.	None required.	None required.	Hazard-6: For each specific project that would generate hazardous waste, the City shall require as a condition of building permit and/or business license approval that the project sponsor prepare a hazardous material transportation program. The transportation program shall identify the location of the new facility or use and designate either (1) specific routes to be used for transport of hazardous materials and wastes to and from the facility, or (2) specific routes to be avoided during transport of hazardous materials and wastes to and from the facility. Routes would be selected to minimize proximity to sensitive receptors to the greatest practical degree. Passage through residential neighborhoods should be minimized, and parking of waste haulers on residential streets should be prohibited. The City shall review and approve the applicant's hazardous material transportation program or, working with the applicant, modify it to the satisfaction of both parties. The City shall require that the applicant provide a copy of the program to the Rodeo-Hercules Fire Protection District. Documentation to that effect shall be added to the administrative record.	NA

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IV.K Air Quality				
Air-4: CO generated by vehicular traffic generated as a result of the Land Use and Circulation Elements Update would increase roadside CO concentrations along heavily traveled roadways and at congested intersections.	Land Use Element Policies 2B, 3A, and 11A and Programs 3A.1 and 3A.2 Circulation Element Objective 2.h, 2.e; Implementation Programs 6,10, and 14	None identified.	Mitigation Measures 3a and 3b discussed in mitigation for Impact Air-3.	NA
Air-6: Development consistent with the Land Use and Circulation Elements Update could expose sensitive receptors to existing and future emissions of non-criteria pollutants.	None identified.	None identified.	None identified.	NA
IV.L Noise				
Noise-4: New roads developed under the Circulation Element Update would increase noise levels along the new alignments.	Circulation Element Objectives 2.b and 2.g	Noise Element Objective 1.d	Noise 4a: The City shall post signs prohibiting trucks from using the proposed Claeys Road extension, except for local deliveries. All other trucks shall be required to use Sycamore Avenue to reach the Claeys Road / SR 4 interchange.	NA

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IV.M Energy				
Energy-1: Increased energy consumption related to construction and operation of development consistent with the Land Use and Circulation Elements Update would derive mostly from non-renewable energy resources.	Energy-1a: All new buildings would be required to meet the standards for energy efficiency as set forth in Title 24 of the California Code of Regulations. These standards would reduce the possibility of wasteful energy use with respect to building heating, cooling, and lighting.	None identified.	Energy-1b: A performance standard that exceeds Title 24 Standards by 10 percent. Under such a standard, the City would require project sponsors of individual projects to design their projects to exceed Title 24 energy conservation performance standards by a certain percentage (at least 10 percent), based on the same calculation methods required for demonstrating compliance with the standard. Title 24 energy conservation performance standards are not particularly challenging, and so achieving an energy efficiency substantially greater than the minimum 10 percent could be interpreted as maximizing the energy efficiency of the project. Sponsors could meet the standard by incorporating the same or all of the following into their projects. • Design large commercial and office structures with a computer-controlled HVAC system for maximum efficiency. • Install occupant-controlled light switches and thermostats to permit individual adjustments to lighting, heating, and cooling, to avoid unnecessary energy consumption.	

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			• Ensure that larger commercial and multi-family residential structures built are well-sealed to prevent outside air from infiltrating and increasing interior space-conditioning loads. Design building entrances with vestibules to restrict infiltration of unconditioned air and exfiltration of conditioned air. • Design window systems and use other means to reduce thermal gain and loss, and thus cooling loads, during warm weather and heating loads during cool weather. • Air distribution systems in large commercial structures could be designed by the project sponsor to cascade ventilation air from high-priority areas to low-priority areas before exhausting it, thereby decreasing the volume of ventilation air required. For example, air could be cascaded from occupied space to corridors to mechanical spaces before being exhausted. • Install high-efficiency lamps for all street and parking lot lighting to reduce electricity consumption. • In commercial buildings, limit domestic hot water outlet temperatures to 100° Fahrenheit.	

TABLE II.1: SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

C. LESS-THAN-SIGNIFICANT IMPACTS

IMPACT	MITIGATION PROPOSED AS PART OF THE PROJECT	MITIGATION IDENTIFIED IN OTHER GENERAL PLAN ELEMENTS	MITIGATION IDENTIFIED IN THIS EIR	RESIDUAL IMPACT
			• In large commercial projects, finish exterior walls with light-colored materials having emissivity characteristics to reduce cooling loads. • Design open space within and around the project to minimize paved areas and maximize landscape plantings using low-water species to reduce outdoor temperatures around the buildings in warm weather. • In commercial structures, install fluorescent and high-intensity discharge lamps, which give the highest light output per watt of electricity consumed, wherever possible.	NA
Energy-2: Development would result in interference with PG&E transmission and distribution facilities.	None identified.	None identified.	Energy-1c: To reduce transportation-related energy, implement the measures that are identified in Sections IV.B., Transportation and Circulation, and IV.K., Air Quality. Energy-2a: The City shall preserve access for PG&E to work on electric and natural gas lines that extend through or adjacent to Parcels 1, 7, and 12, possibly through deeding of access rights-of-way.	NA

TABLE II.1: SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

C. LESS-THAN-SIGNIFICANT IMPACTS

IMPACT	MITIGATION PROPOSED AS PART OF THE PROJECT	MITIGATION IDENTIFIED IN OTHER GENERAL PLAN ELEMENTS	MITIGATION IDENTIFIED IN THIS EIR	RESIDUAL IMPACT
Energy-3: Development consistent with the Land Use and Circulation Elements Update would require additional electrical distribution lines and a second transformer bank at the Franklin substation.	None identified.	None identified.	Energy-2b: The City shall require individual developers or commercial tenants contact PG&E during the building application process to allow PG&E to review specific development plans with respect to potential impacts on PG&E distribution facilities.	NA

NA=Not Applicable

SOURCE: Environmental Science Associates, Inc.

III. PROJECT DESCRIPTION

A. PROJECT LOCATION

REGIONAL SETTING

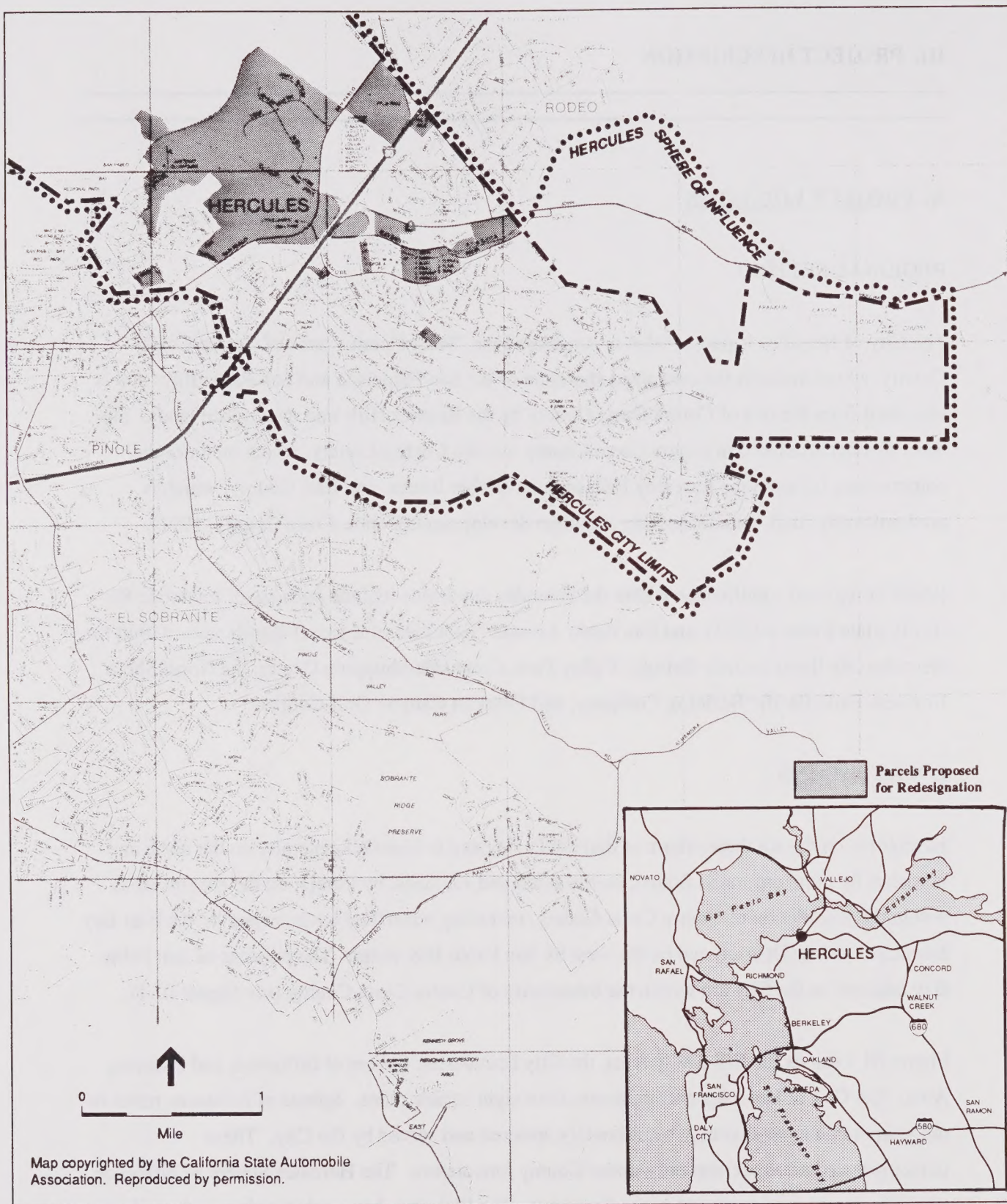
The City of Hercules is part of what is considered the "West County" area of Contra Costa County, which includes the urbanized shoreline of the San Francisco and San Pablo Bays and is separated from the rest of Contra Costa County by the Briones Hills and open space lands. The other distinct areas within Contra Costa County include Central County, which includes the communities between the East Bay Hills and the Diablo Range; and East County, which is predominantly rural, with increasing suburban development (Contra Costa County, 1991).

Roads of regional significance within the Hercules city limits include portions of Interstate 80 (I-80), State Route 4 (SR4), and San Pablo Avenue. Facilities of regional significance within the Hercules city limits include Refugio Valley Park, Creekside Shopping Center, the North Shore Business Park, Pacific Refining Company, and Franklin Canyon Golf Course.

LOCAL SETTING

Hercules is on the southeast shore of San Pablo Bay and is bounded generally on the north and northeast by unincorporated Rodeo; on the south and southeast by Pinole; on the east by lands within the jurisdiction of Contra Costa County, including watershed lands owned by the East Bay Municipal Utility District; and on the west by San Pablo Bay waters. The portions of San Pablo Bay adjacent to the City are within the boundaries of Contra Costa County (see Figure III.1).

Figure III.1 shows the EIR Study Area, the City boundaries, Sphere of Influence, and Planning Area. The City of Hercules encompasses about eight square miles. Sphere of Influence refers to unincorporated areas that may be ultimately annexed and served by the City. These unincorporated areas are currently under County jurisdiction. The Hercules Sphere of Influence encompasses an area northeast of the City limit. The Planning Area includes the city boundaries, Sphere of Influence, and areas that bear some relation to the City's planning activities (State of California, 1990). The Hercules Planning Area extends to the limits of the Sphere of Influence.



Hercules General Plan Land Use and Circulation Elements Update / 930314 ■

SOURCE: Environmental Science Associates

Figure III.1
Regional Location

Most of the City's land area is east of I-80, which runs north-south through the city. Refugio Creek runs east-west through the city, extending to its east and west boundaries. The largest existing major land use is the residential land use category. The majority of residential development has occurred to the east of I-80, generally in the form of single-family detached homes. Existing commercial uses are mostly neighborhood-serving and have been concentrated along the two east-west running roads of Sycamore and Willow Avenues near the eastbound I-80 off-ramps. Industrial and research and development/office uses exist in the northwest portion of the of the city, with light-industrial uses dispersed to the east of I-80 along SR4.

B. PROJECT OBJECTIVES

The General Plan is considered to be the "constitution" for growth within cities and counties in California. The pattern of land use and image of the community are outlined within the General Plan and its respective elements. The Hercules *General Plan* includes the following Elements, with most recent amendment date(s) shown in parenthesis: Land Use Element (June 1989), Circulation / Scenic Highway Element (October 1988), Housing Element (June 1990), Open Space / Conservation Element (1990), Safety / Seismic Safety Element (June 1989), Noise Element (October 1988), Economic Development Element (January 1991), and Growth Management Element (adopted in 1994). Citizen participation is encouraged and sought after in the formulation of the General Plan and its respective Elements. Such is the case in the formulation of the goals, objectives, policies, and programs found within the Land Use and Circulation Elements.

LAND USE ELEMENT

As stated in Chapter I, Introduction, the City of Hercules sponsored workshops by a Community Panel that addressed the current land use issues and provided recommendations to the City Planning Commission and City Council. Concerns of the Community Panel ranged from protection and enhancement of open space to fostering economic development to help provide jobs, services and City revenue that would provide a balance to existing residential development in the City. The development of mostly residential land uses has put a burden on the City's ability to provide adequate services. Changes in the Land Use Element are proposed in order to provide a mix of uses that will help support present and future service demands on the City.

The updated Land Use Map is guided by four major concepts, which were defined by the Community Panel. The concepts are as follows:

1. Extending the linear park along Refugio Creek westward from San Pablo Avenue to San Pablo Bay. The creek corridor in the eastern portion of the City provides a major amenity, and extending the corridor to the Bay would provide a similar attraction in the western portion of the City. It would also establish the creek corridor as a major urban design element for the entire community.
2. The junction of two major state highways offers major opportunities for retail development. Land near the I-80 and SR-4 interchange and along SR-4 should be designated for general commercial use.
3. New business, and the resulting jobs and business opportunities, can most easily be accommodated at the vacant property between the commercial area noted in #2 above, and the existing employment areas.
4. A limited amount of new residential development should be allowed on vacant properties that adjoin existing neighborhoods and that are more closely associated with existing neighborhoods than the employment or commercial areas. Buffers should be established between the residential and non-residential areas (City of Hercules, 1993).

The City, after public hearings and debate, has incorporated the Community Panel recommendations within the proposed updated Land Use Element. The Element's goals and objectives, considered to reflect the project objectives for purposes of this EIR, are summarized below. Impacts and mitigation measures related to the City's policies have been identified in the environmental analysis described in the sections of Chapter IV.

Goals

- Preserve and enhance the community's quality of life with well balanced growth and development.
- Enhance and create a community with a wide range of choices, services, and amenities.

Objectives

Objective 1 - Achieve a level of population and employment which preserves and enhances the desired character of the community.

Objective 2 - Develop a community that balances housing, jobs, and commercial opportunities.

Objective 3 - Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and protects the quality of life in the community.

Objective 4 - Develop sufficient employment and commercial tax generating uses to maintain a positive City government fiscal condition.

Objective 5 - Develop and maintain a pattern of residential land uses which provide for a variety and balance of densities and opportunities for a mix of dwelling and residential type.

Objective 6 - Provide residential neighborhoods with a variety of cost ranges dispersed throughout the City.

Objective 7 - Achieve a pattern of development that is consistent with the City's desired image.

Objective 8 - Preserve Hercules history while developing its future.

Objective 9 - The City shall consider economic feasibility as a factor in the development review process, within the framework of the General Plan.

Objective 10 - Provide recreational and cultural amenities within the community that meet the needs of the residents and workers.

Objective 11 - Participate and cooperate in regional and sub-regional planning activities.

Objective 12 - Encourage mixed use development that provides for an integrated mixture of residential and employment generating uses within the same structure.

Objective 13 - Minimize the impacts from incompatible land uses on existing and planned development areas.

Objective 14 - Protect and enhance significant environmental attributes and features.

Objective 15 - Provide for public, semi-public and non-profit uses and activities throughout the community.

These goals and objectives were the impetus for the related and more detailed Land Use Element policies and programs, and the City's Land Use Map redesignations. The City hopes to achieve its outlined objectives through the incorporation of redefined land uses and building densities. The Land Use Element and accompanying map provide general designations for the redefined land uses, and policies in the Land Use and other General Plan Elements provide general guidance for development City-wide.

Master or Specific Plans may be needed to further define objectives for development in certain areas of the City. For example, the Community Panel report discusses the need for further or "Concurrent Studies," for the historic town center and bay shore areas (Community Panel, 1993). Under the updated Land Use Element, these two areas would require a specific plan. Ultimately,

the City's Zoning Ordinance, in conjunction with the General Plan, would provide the framework for implementation of the objectives.

CIRCULATION ELEMENT

The current Circulation Element was adopted by the City Council in October 1988. The draft Circulation Element Update would be consistent with the development assumptions in the Land Use Element Update, as required by state law. Generally, the existing Circulation Element objectives and policies are continued in the draft Circulation Element Update, with the primary exception being a change in traffic level of service standards necessitated by the passage of Contra Costa County Measure C (1988) and the City's subsequent adoption of a *General Plan* Growth Management Element. The two objectives remain as in the current Circulation Element:

- 1) Provide for the movement of people and commodities in the City.
- 2) Plan for the preservation and enhancement of visual qualities as viewed from designated scenic routes.

With regard to traffic levels of service, whereas the existing Circulation Element stated that peak-hour traffic on arterial streets and intersections should operate at Level of Service D or better, the draft Circulation Element Update reflects the adopted level of service (LOS) standards in the Growth Management Element, as reflected in Policy 2.a of the Circulation Element Update. These standards range from LOS D on most Basic Routes to LOS "Low" E on Sycamore Avenue and Bayberry Avenue. A complete description of the standards is provided in Section IV.B, Transportation and Circulation, under "Significance Criteria" on p. IV.B-16.

C. PROJECT CHARACTERISTICS

LAND USE ELEMENT

The main feature of the updated Land Use Element is the redesignation of 24 parcels that total approximately 600 acres or 0.9 square miles. Figure III.2 shows the location of the 24 parcels. Figure III.2 also indicates the boundaries of the Hercules Redevelopment Agency's Dynamite Redevelopment Project, the plan for which would be updated. In developing the proposed land use designations, the City considered recommendations made by the Community Panel and the constraints identified in the 1991 Master Environmental Assessment. The sizes of parcels affected by the changes in land use designation range from parcels of less than two acres to



PROPERTIES ANALYZED IN THE MEA

ADDITIONAL PARCELS

- | | |
|--------------------------------|-----------------------------|
| 1 Hercules Properties, Inc. | 5 MRB Site |
| 2 Hercules Point | 6 North Shore Business Park |
| 3 Gelsar Inc. | 7 ANR Site |
| 4 Hercules Inc./San Pablo Site | 8 Hercules Square Site |
| | 9 ORB Site |
| | 10 BART Site |
| | 11 I-80 Exit Loop Site |
| | 12 TABCO Site |
| | 13 Sycamore Site |
| | 14 Five Giants Site |

- | | |
|----------------------|--------------------|
| A Church of Nazarene | F Carone Sycamore |
| B McLeod Family | G Old ATSF |
| C Citation | H Creekside |
| D Carone-1 | I Willow Center |
| E Carone-2 | J Church of Christ |

— Hercules Redevelopment Agency
(Dynamite Redevelopment Project)

SOURCE: Environmental Science Associates, Inc.

Hercules General Plan Land Use and Circulation Elements Update / 930314 ■

Figure III.2
Parcel Locations

larger combined properties of up to 130 acres. The proposed parcels to be redesignated are located mainly west of I-80, and along the SR4 corridor; most of the acreage is west of I-80. Although the 24 parcels are generally separate, individually owned parcels (some have more than one owner), they can be largely grouped into two categories.

Land that was used as production, buffer area, and storage for the old Hercules Powder Company forms the first category. This land is located west of I-80, and includes Parcels 1, 2, 3, 4, 5, 6, B and C. (The numbers and letters correspond to the labels in Figure III.2. Numbered parcels are those evaluated by the Community Panel; "lettered" parcels are those evaluated by City staff.) The total acreage of these parcels is approximately 430 acres.

The second category includes land located in the SR 4 and I-80 corridors. These parcels include 7, 8, 9, 10, 11, 12, 13, 14, D, E, F, G, H, I, and J; making a combined total of 165 acres.

Parcel A does not fit into either of the categories. This 2.5-acre parcel is located in the eastern portion of the City, on Refugio Valley Road at Partridge Drive (see Figure III.2).

The parcels are generally undeveloped or underdeveloped with structures consisting of mostly sheds, stables and parcel used for open storage. Three of the parcels are partially developed and are being utilized by businesses. These three parcels include the North Shore Business Park (Parcel 6), the Hercules Properties Inc. (Parcel 1), and Willow Shopping Center (Parcel I). In addition, a transit center is under construction on Parcel 10, and a retail development has been approved for Parcel 9.

Land Use Categories

The types of land uses that are included in the updated Land Use Element encompass the land use categories in the current General Plan. The Land Use Element Update has redefined the land uses in the current General Plan, incorporating existing land uses' type and density. In addition, new categories are specifically designed for some of the 24 parcels. The parcels on which the proposed land use changes would be focused are noted in parentheses after the heading for each land use category discussed below. Several categories would apply to more than one of the 24 parcels proposed for redesignation.

Commercial Uses

The proposed permissible floor-area-ratio (FAR) is described under each commercial land use category; the FAR is calculated by dividing the gross floor area of a building by the area of the lot in which it is built. "Typical" FARs are also identified for each category. The Land Use Element states that the typical FAR would be the maximum development intensity allowed unless a development were to meet a specific goal, policy, objective or program of the Element, in which case, development may be built to the higher end of the permissible range. Additional site-specific study of traffic and other impacts might be required prior to development at a FAR higher than the typical.

The draft Land Use Element Update also notes that FAR is a flexible measure of development intensity. For example, a three-story building covering 10 percent of a lot has the same FAR as a one-story building covering 30 percent of a lot. FAR is used in combination with other zoning regulations, including setbacks, open space, parking and building requirements, to determine the final extent of development permitted. The draft Land Use Element also notes that site-specific development constraints, such as geotechnical conditions, topography, presence of archaeological sites, hydrological concerns, and other constraints could limit development intensity at some parcels to less than the intensity prescribed in the Element; further site-specific environment review that is required subsequent to the creation of specific development proposals would evaluate such issues.

Residential Uses

The residential categories described below include a provision for supporting uses. Examples of supporting uses include schools, churches, and day care facilities. Density ranges for residential development (shown in dwelling units per net acre) may be adjusted pursuant to state and city laws and policies (City of Hercules, 1990). Higher densities may be permitted that are consistent with the State's Housing Policy that grants a density bonus to a development that proposes construction of housing that is affordable to persons of very low income, or low or moderate income (Curtin, 1994). Lower densities may be permitted when specific findings contained in Policy 5A are made by the Planning Commission. The findings are:

- The development would be compatible with the surrounding neighborhood and would not have a detrimental effect on existing or future multi-family development, or on existing or future commercial development.

- The reduced density will not prevent the city from achieving its goals for low and moderate income housing, as set forth in the Housing Element.

For residential land use categories, density is also shown in persons per net acre, based on an assumption of 2.89 persons per household for new residential development in the Study Area.

The analyses of impacts in this EIR generally are based on development at the typical density level. Additional environmental review may be required for specific commercial, industrial, or residential projects that propose development above the densities described in this EIR and typical densities in the Land Use Element Update.

Description of Land Use Categories

The updated land use categories include the following:

General Commercial. (Parcels 1, 3, 4, 6, 9, 11, 12, 14, D, E, I, and J) This designation would allow general commercial development including retail, wholesale (open to the public) and office use. Commercial uses may be public, semi-public and private-non-profit, if compatible with adjacent uses. Banks, retail businesses, and other professional uses would exist in strip commercial centers or free-standing buildings. Service stations, auto repair and restaurants also would be permitted, subject to location and design restrictions. The General Commercial FAR would range from 0.20 to 1.00. The typical FAR for this category would be 0.30.

Historic Town Center. (Parcel 1) This designation identifies the former Hercules Powder Company and adjacent historic residential uses. The purpose of this designation is to allow reuse of existing Victorian-type homes and structures, and to permit new structures that maintain the existing architectural character of the area. Uses would include professional, administrative, personal services, restaurants and coffee shops, and businesses that would provide waterfront services. Multi-family units would be allowed under this designation, with up to 17 units per acre and no more than 40 units in total (about 50 persons per acre; up to about 115 persons). The FAR for the non-residential category would range from 0.15 to 0.40. Typical FAR for this category would be 0.20.

Waterfront Commercial. (Parcel 2) This designation would allow restaurants, food and beverage shops, recreational equipment sales, bait-and-tackle shops and visitor-oriented uses. Private structures would be able to have an FAR ranging from 0.15 to 0.30, with a typical FAR of 0.20.

Community Commercial. (Parcels 8, F, G and H) Retail, office and service uses that would serve residents and employees in the City would be permitted under this designation. The FAR for this category would range from 0.20 to 1.00, with a typical FAR of 0.25.

Recreational Commercial. (Parcel 1) Properties with this designation would be developed and used for recreational activities that are conducted as a business, either for

profit or non-profit. Such uses could include a golf course, driving range, batting cages, athletic clubs, and cafes and bars with an FAR that would range from 0.20 to 0.40. The typical FAR for this category would be 0.30.

Commercial/Public. (Parcel 10) This designation identifies a property owned by the Bay Area Rapid Transit District (BART) that is being developed as a transfer hub for BART Express, WestCAT, and other bus operators. The FAR for this category shall not exceed that allowed in "General Commercial."

Planned Office/R&D. (Parcels 1 and 6) Uses under this designation would include research and development, manufacturing, administrative offices, and warehouse and distribution centers. The FAR would range from 0.25 to 1.00, with a typical FAR of 0.30. Development of properties in these areas shall be governed by specific area plans or master plans.

Planned Commercial/Industrial. (Parcel 7) This designation was created to utilize the high visibility of SR 4 and I-80 for uses such as retail, administrative and service office, research and development, manufacturing, and business industrial services with an FAR that ranges from 0.25 to 0.50. A typical FAR under this category would be 0.30. Development of properties in these areas shall be governed by specific area plans or master plans.

Planned Commercial/Residential. (Parcels 3, 4, 5 and 13) Parcels with this designation would accommodate both commercial and residential uses in a mixed-use development. Commercial development could include a shopping mall, a traditional downtown shopping street, professional and service offices. The FAR range for this category is 0.20 to 0.40 with a typical FAR of 0.30. Residential uses that would be permitted include multi-family residences. The residential uses would be allowed above or behind commercial uses; permitted density would be 15 to 30 units per net acre (about 45 to 85 persons per acre). Development of properties in these areas shall be governed by specific area plans or master plans.

Industrial/Residential. (Parcel 1) Combining work space and residential space in the same structure is the intent of this designation. Start-up companies, craft workshops or other businesses that could provide living space above or behind the business would be permitted under this designation. The FAR for the work-space portion of the structures would not exceed 0.50, and residential density shall not exceed 25 units per acre (about 75 persons per acre).

Industrial. (Parcel 7) This category is intended to accommodate heavy industrial uses, refineries, and storage facilities. The FAR range shall be from 0.30 to 0.50, with a typical FAR of 0.40.

Single Family Estate. (Does not apply to any of 24 study area parcels) This land use category is intended to provide sites for "estate" homes on larger lots, and shall be developed with custom-built and individually-designed homes. Secondary units, and uses that support residential uses may be allowed in the area, provided that the adjoining neighborhood shall not be substantially impacted by traffic, noise, or other off-site effects. This category allows for a density of 1 to 2 units per acre (about 3 to 6 persons per acre).

Single Family Low Density. (Does not apply to any of 24 study area parcels) This land use category is intended to provide areas for suburban single-family subdivisions. These lots will generally be developed as part of multi-lot "production" subdivisions, where a limited number of models (with two or three different exterior designs) are built on individual lots in a random pattern. Secondary units and uses that support residential uses may be allowed in this area, provided that the adjoining neighborhood shall not be substantially impacted by traffic, noise, or other off-site effects. This category allows for a density of 2 to 7 units per acre (about 6 to 20 persons per acre).

Single Family Medium Density. (Does not apply to any of 24 study area parcels) This land use category is intended to provide areas of single-family homes on lots that are smaller than a "typical" suburban lot. They may be developed with either single family residences or duets. The size of the lots for each single family residence may range between 4,000 sq. ft. and 7,000 sq. ft. (7 to 12 units per net acre; about 20 to 35 persons per acre). Uses that support residential uses may be allowed in this area, provided that the adjoining neighborhood shall not be substantially impacted by traffic, noise, or other off-site effects.

Multi-Family Low Density. (Parcels A, B and C) Single- and multi-family residences, townhouses, duets, condominiums or apartments would be typical uses under this designation. The allowable density would be 7 to 12 units per acre (about 20 to 35 persons per acre). Uses that support residential uses may be allowed in this area, provided that the adjoining neighborhood shall not be substantially impacted by traffic, noise, or other off-site effects.

Multi-Family Medium Density. (Parcels 1, 4 and 5) Parcels with this designation are intended to provide areas for multi-family residences (primarily condominiums, apartments and townhouses) on five-acre or larger parcels. Higher density in these areas is expected to provide additional affordable housing. The allowable density would be 12 to 30 units per net acre (about 35 to 85 persons per acre). Uses that support residential uses may be allowed in this area, provided that the adjoining neighborhood shall not be substantially impacted by traffic, noise, or other off-site effects.

Multi-Family High Density. (Does not apply to any of 24 study area parcels) This land use category is intended to provide higher density housing, typically near public transit centers, shopping centers, or other "high activity" areas. The allowable building density would be 30 to 55 units per net acre (about 85 to 160 persons per acre). Since publication of the MEA, two parcels have been built with high-density residential development that would conform to the proposed designation, when adopted. Uses that support residential uses may be allowed in this area, provided that the adjoining neighborhood shall not be substantially impacted by traffic, noise, or other off-site effects. This designation, which would not apply within the study area, is intended to provide flexibility for potential future high-density housing development in Hercules.

Table III.1 is a summary of each parcel, the proposed land use designation, and maximum development scenario that could occur given development at what is considered a reasonably foreseeable FAR (generally, the typical FAR). Buildout consistent with the proposed Land Use Element Update could result in up to about 5,000,000 square feet of commercial development and about 3,800 multi-family residential units. The text of the draft Land Use Element is included in Appendix F of this document.

TABLE III.1: COMMUNITY PANEL RECOMMENDED LAND USE CONCEPT:
MAXIMUM DEVELOPMENT POTENTIAL

Parcel	Common Name	Preferred Designation Use	Acres	Maximum Sq. Ft.	Intensity/Density		
					FAR	U/AC	Units
1	HPI Site	Historic Town Center	8.6	85,000	&		25
		Planned Office/R&D	21.1	459,558			
		General Commercial	3.8	82,764			
		Planned Office/R&D	15.3	199,940			
		Planned Office/R&D/Res	3.0	39,204	0.3	36	108
		Multi-Family, Med Dens	22.3			30	669
		Open Space/Creek Corridor	32.0	n/a	n/a	n/a	n/a
		Total Acreage	106.1				
2	Hercules Point	Waterfront Commercial	6.0	52,272	0.2	n/a	n/a
		Undeveloped Remainder	9.0	n/a	n/a		
		Total Acreage	15.0				
3	Gelsar Site	General Commercial	14.1	153,549	0.25	30	1350
		Planned Commercial/Res	45.0				
		Planned Office/R&D	18.5	241,758	0.3	n/a	n/a
		Open Space/Creek Corridor	26.4	n/a	n/a		
		Total Acreage	104.0				
4	Hercules Inc Site	Multi-Family, Med Dens	24.5			30	735
		Planned Commercial/Res	6.5	42,471	0.3	30	98
		General Commercial	10.5	137,214	0.3		
		Total Acreage	41.5				
5	MRB Site	Multi-Family, Med Dens	4.6			30	138
		Planned Com/Res	1.0	13,068	0.3		
		Total Acreage	5.6				
6	North Shore Business Park	Planned Off/R&D	60.9	795,841	0.3		
		General Commercial	15.5	202,554	0.3		
		Planned Off/R&D	67.5	900,000	0.3		
		Total Acreage	143.9				
7	ANR Site	Planned Cmrc./Industrial	41.6	543,629	0.3		
		Planned Cmrc./Industrial	20.8	362,419	0.4		
		Total Acreage	62.4				
8	Hercules Square	Community Commercial	2.9	31,581	0.25		
9	ORB Site	General Commercial	3.5	20,000	0.15		
10	BART Site	Public/Semi-Public	6.6	Park & Ride			
11	I-80 Loop Site	General Commercial	6.3	82,328	0.3	&	30
12	TABCO Site	General Commercial	8.9	116,305	0.3		
13	Sycamore Site	Planned Com/Res	25.1	54,880	0.15		
14	Five Giants	General Commercial	7.0	91,476	0.3		
SUBTOTAL			538.8	4,707,811			3,625

(Continued)

TABLE III.1: COMMUNITY PANEL RECOMMENDED LAND USE CONCEPT:
MAXIMUM DEVELOPMENT POTENTIAL (Continued)

Parcel	Common Name	Preferred Designation Use	Acres	Maximum Sq. Ft.	Intensity/Density		
					FAR	U/AC	Units
A	Church of Nazarene	Multi-Family, Low Dens	5.0			10	50
B	McLeod	Multi-Family, Low Dens	7.4			10	74
C	Citation	Multi-Family, Low Dens	5.6			12	67
D	Carone - 1	General Commercial	2.0	26,136	0.3		
E	Carone - 2	General Commercial	1.8	23,522	0.3		
F	Carone - Sycamore	Community Commercial	2.6	33,977	0.3		
G	Old ATSF	Community Commercial	1.7	22,216	0.3		
H	Creekside	Community Commercial	25.3	160,455	var.		
I	Willow Center	General Commercial	3.4	31,000	var.		
J	Church of Christ	General Commercial	7.0	church			
SUBTOTAL			61.8	297,306			191
TOTAL			600.6	5,005,117			3,816

Note: Maximum development figures for parcels that are partially developed are "gross" and include existing built space; figures for "new" space may be derived by subtracting existing space from these figures.

CIRCULATION ELEMENT

The Circulation Element addresses the traffic and circulation constraints associated with each of the 24 affected parcels and recommends several improvements to Hercules' existing road network as a whole to accommodate the potential build-out of such land uses to the year 2010. Transportation-related parcel-specific improvements are not identified because individual development plans are not proposed.

The draft Circulation Element Update revises the development assumptions contained in the existing (1988) Circulation Element, based on the changes in land use designations proposed in the Land Use Element Update. Traffic analysis for the Circulation Element Update was based on the West County Travel Demand Model, a regional traffic model developed since the existing Circulation Element was adopted. The draft Circulation Element Update also includes revised traffic level of service standards already adopted by the City as part of the *General Plan* Growth Management Element (see Section III.B., Project Objectives).

The Circulation Element Update describes several roadway and other transportation improvement projects that are either already funded or are otherwise expected to be complete by 2010. Those projects include:

- Willow Avenue widening, and addition of left turn lanes and traffic signal at I-80;
- Construction of SR 4 freeway, I-80 to Cummings Skyway, including grade separation at Willow Avenue, extension of Willow to Bayberry Avenue, new interchange at Claeys Road (near the current SR 4/Sycamore Avenue intersection), and extension of Sycamore Avenue to the new interchange;
- Construction of a new local street connecting the new SR 4 interchange to residential neighborhoods in Refugio Valley;
- Rehabilitation of San Pablo Avenue and addition of bicycle lanes;
- Refugio Valley Road widening, and addition of bicycle lanes, left turn lanes, medians, and traffic signals at Falcon/Redwood, Partridge and Pheasant;
- Construction of transit center/park-and-ride lot at San Pablo and Sycamore Avenues;
- Ramp improvements at SR 4/Bayberry Avenue; and
- Re-alignment and signalization of the Sycamore Avenue/Palm Avenue intersection.

The draft Circulation Element Update includes a conceptual alignment for a new roadway that could be constructed to serve development west of San Pablo Avenue. Such a roadway likely would be constructed in the future, once specific development proposals were received for some of the parcels west of San Pablo Avenue (in particular, Parcels 1, 3, and 4). A new intersection would be expected to be constructed on San Pablo Avenue between Sycamore and Hercules Avenues to serve this new roadway. To date, no specific proposals have been developed for the roadway alignment. Further site-specific environmental review could be required for this project.

The draft Circulation Element Update concludes that local peak-hour traffic conditions within Hercules generally would be acceptable in 2010, the year assumed for buildout under the Land Use Element Update, with the exception of two key intersections on San Pablo Avenue: at John Muir Parkway and at Sycamore Avenue. At those intersections, peak-hour traffic conditions are projected to be substantially worse than the Level of Service E objective established by the West Contra Costa County Traffic Advisory Committee for San Pablo Avenue, largely as a result of traffic that uses San Pablo Avenue as an alternate to the congested conditions on Interstate 80. At the same time, the City and other local jurisdictions do not propose to increase capacity on San Pablo Avenue, but instead to attempt to reduce traffic on I-80 as a means of improving traffic conditions on the freeway and on San Pablo Avenue. As stated in the draft Circulation Element Update:

The City of Hercules, together with other jurisdictions in the I-80 corridor have agreed in developing the West County Action Plan that capacity improvements that encourage the use of San Pablo Avenue will not be considered. This means that the City of Hercules will focus its efforts on working with other West County jurisdictions and regional transit agencies to develop alternatives to single-occupant automobile use in the I-80 corridor. This includes pursuing BART extensions in West County, commuter rail service to Solano County, and improved bus connections. The blueprint for this approach is provided in the West County Action Plan.

The draft Circulation Element Update also includes a revision to Policy 2.e, which calls for the City to participate with other communities in providing effective public transit. The revised policy specifically calls for promoting commuter rail and a train station in Hercules to divert traffic from Interstate 80. In addition, the draft Circulation Element Update includes an implementation action under which the City would establish a traffic mitigation fee program that would collect funds from new development to pay for transportation-related improvements and another implementation action that acknowledges the City's adopted Transportation Demand Management Program. The draft Circulation Element is included in Appendix G of this document.

REDEVELOPMENT PLAN

As noted in Chapter I, the project would include updating the Redevelopment Plan for the Dynamite Redevelopment Project, encompassing a large part of the study area, to reflect changes in the Land Use Element. Draft Redevelopment Plan Amendments are included in Appendix H of this document.

D. DEMOGRAPHIC PROJECTIONS

The proposed Land Use Element provides for the physical development of the City. For the purposes of this EIR, it is assumed that "build-out" of the City (the development of all the designated land uses at the typical density level) would occur by the year 2010. Because actual buildout might not occur until after 2010, this is a conservative assumption. Were buildout to occur later than 2010, the impacts described in this EIR might occur somewhat later. However, the ultimate level of impact would be expected to be similar to that described herein.¹

Table III.2 shows population and housing data for the City of Hercules in 1990 and 2010, under both the existing and proposed General Plans (Land Use Element). As shown in the table, development consistent with the updated Land Use Element would increase the population and number of households. It is important to note that this scenario would occur if all parcels were developed with the proposed land uses. The existing Land Use Element would allow for a 25 percent increase in total population over 1993 levels, and the proposed Land Use Element would allow for a 64 percent increase in total population. Refer to Section IV.C, Population, Employment and Housing, for an analysis of population growth in relation to projected jobs.

E. DISCRETIONARY APPROVALS REQUIRED BY THE CITY

In order to adopt the revised Land Use and Circulation Elements, the City of Hercules' Planning Commission and City Council must hold public hearings and certify the EIR. Consistent with state law, amendments to mandatory general plan elements may occur four times within a calendar year. The approved Land Use and Circulation Elements would be considered an amendment because the elements are being replaced and incorporated within the General Plan.

During or immediately after the adoption of the Land Use and Circulation Elements the City must then take further steps to analyze and compare the elements with other City policies and municipal codes. Specifically, the city needs to compare and modify any differences with other General Plan elements and its Zoning Ordinance (State of California, 1990).

¹ Among the projects included in the cumulative forecasts in this EIR is a residential-commercial project in the recently annexed Franklin Canyon area of eastern Hercules. Although the buildout date of this development is uncertain, this EIR assumes that the Franklin Canyon project, including about 800 residential units and a hotel (plus existing golf course), would be complete by 2010.

TABLE III.2: EXISTING AND PROJECTED POPULATION AND HOUSEHOLDS, CITY OF HERCULES

	<u>Total Population</u>	<u>Number of Households</u>
1990 Conditions/a/	16,839	5,308
1994 Conditions/b/	16,898	6,345
2010 - Existing General Plan/a/	23,600	8,160
2010 - Proposed General Plan/c/	29,927	10,161

/a/ Source for 1990 and 2010 Existing General Plan conditions for total population and number of households is Association of Bay Area Governments' Projections '94.

/b/ Household population for 1994 from Department of Finance. Other 1994 data from Community and Business Development Department.

/c/ Source for 2010 Proposed General Plan conditions is Sedway & Associates.

SOURCE: Sedway & Associates; Association of Bay Area Governments; Environmental Science Associates, Inc.

REFERENCES - Project Description

City of Hercules, *General Plan*, 1990

City of Hercules, Draft *General Plan* Land Use Element, 1993

Community Panel, City of Hercules, "Report of the Community Panel," 1993.

Contra Costa County, *Contra Costa County General Plan*, January 1991.

Curtin, Daniel J., *California Land Use & Planning Law*, January 1994.

State of California, *General Plan Guidelines*, November 1990.

IV. ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

A. LAND USE, PLANS AND POLICIES

SETTING

Existing Land Use

Regional

Chapter III, Project Description, includes a description of Hercules' regional setting. The City of Hercules encompasses about eight square miles on the southeast shore of San Pablo Bay, in western Contra Costa County. Transportation facilities and commercial activities of regional significance within the City limits include Interstate 80, State Route 4, and San Pablo Avenue; Refugio Valley Park; Creekside Shopping Center; the North Shore Business Park; Pacific Refining Company; and Franklin Canyon Golf Course.

As stated in the Project Description, the City of Hercules abuts the city of Pinole and the unincorporated community of Rodeo, other unincorporated Contra Costa County lands and San Pablo Bay. Some of the lands within the City are subject to the overlapping jurisdictions of regional, state, and federal agencies, including the State Lands Commission, East Bay Regional Park District, San Francisco Bay Conservation and Development Commission, and U.S. Army Corps of Engineers.

Local

About 579 acres (0.9 square miles) of developable land remains within the City of Hercules, and is contained in 24 separate parcels. Parcels 1 - 14 were analyzed in the Master Environmental Assessment (MEA). Parcels A-J were recently proposed for redesignation and are mainly smaller lots located east of I-80. It is not entirely accurate to consider all of the properties undeveloped since some of them have had previous uses, including industrial development, and some are already partially developed. Although the 24 parcels are separate, individually owned parcels, they can be broadly grouped into two categories.

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

Land that was used as production, buffer area, and storage for the old Hercules Powder Company forms the first category and contains the majority of the developable acreage. This land is located west of I-80, and includes Parcels 1, 2, 3, 4, 5, 6, B and C. The total acreage of these parcels is approximately 430 acres.

The second category is land located in the SR 4 and I-80 corridors and includes Parcels 9, 10, 11, 12, 13, 14, D, E, F, G, H, I, and J. These parcels total 101 acres.

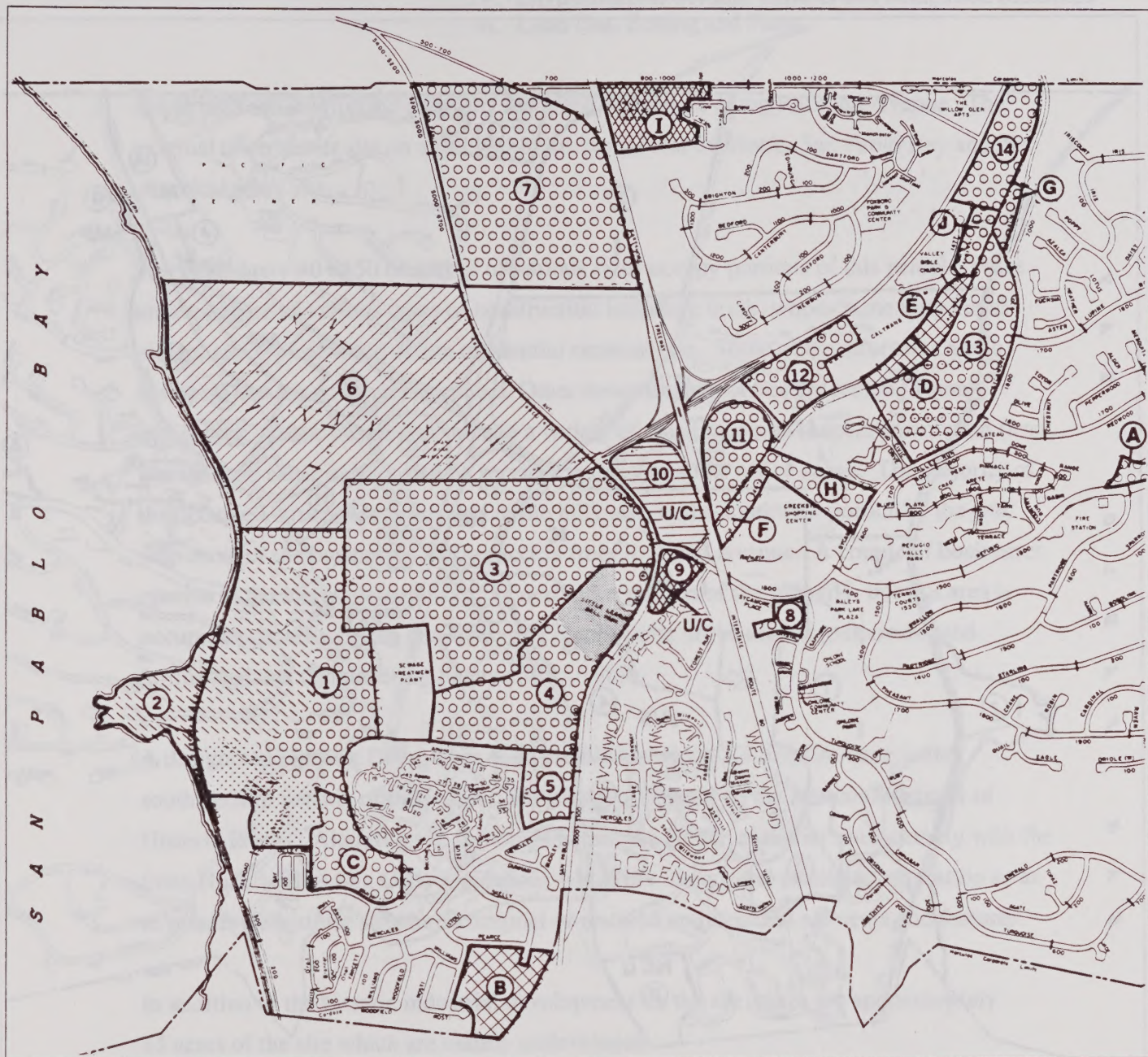
Parcels 7, 8 and A do not fit into either of the categories and consist of 62, 3 and 2.5 acres, respectively. Parcel 7 is located west of and adjacent to Interstate 80, in the northern area of Hercules. Parcel 8 is east of I-80, on Refugio Valley Road in the immediate vicinity of Creekside Shopping Center and Raley's Parklane Plaza. Parcel A is located in the eastern portion of the City, also on Refugio Valley Road.

Parcel Characteristics

Following are descriptions of existing land uses and current zoning and planning designations for the 24 parcels for which changes in land use designations are proposed. Existing land uses are illustrated in Figure IV.A.1. Existing *General Plan* land use designation districts are shown in Figure IV.A.2.

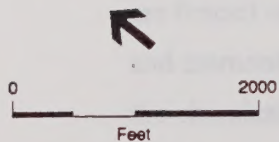
1. Hercules Properties, Inc. This parcel consists of 106 acres in the western part of Hercules, and encompasses the lower portion of the Refugio Creek Valley. It is bounded by San Pablo Bay and Parcel 2 to the northwest, residential development and Parcel C to the southwest and south, Hercules' sewage treatment plant and Parcel 3 to the southeast and east, and Parcel 6 to the northeast. This parcel is zoned M - Industrial District, and has a *General Plan* designation of I - Industrial.

This parcel is part of the historic location of the Hercules Powder Company (and later the Hercules Chemical Plant) which dates back to the 1880s. Much of this area is still developed with the buildings and equipment used for plant operations even though production at the chemical plant was phased out in 1977. Most of the equipment from the previous operations has been left on-site since the plant closure, and much of it is inoperable at this time; this equipment would likely be removed as part of site cleanup activities. (See Section IV.G, Hazardous Materials, for information on site remediation.)



① / A Parcel Reference

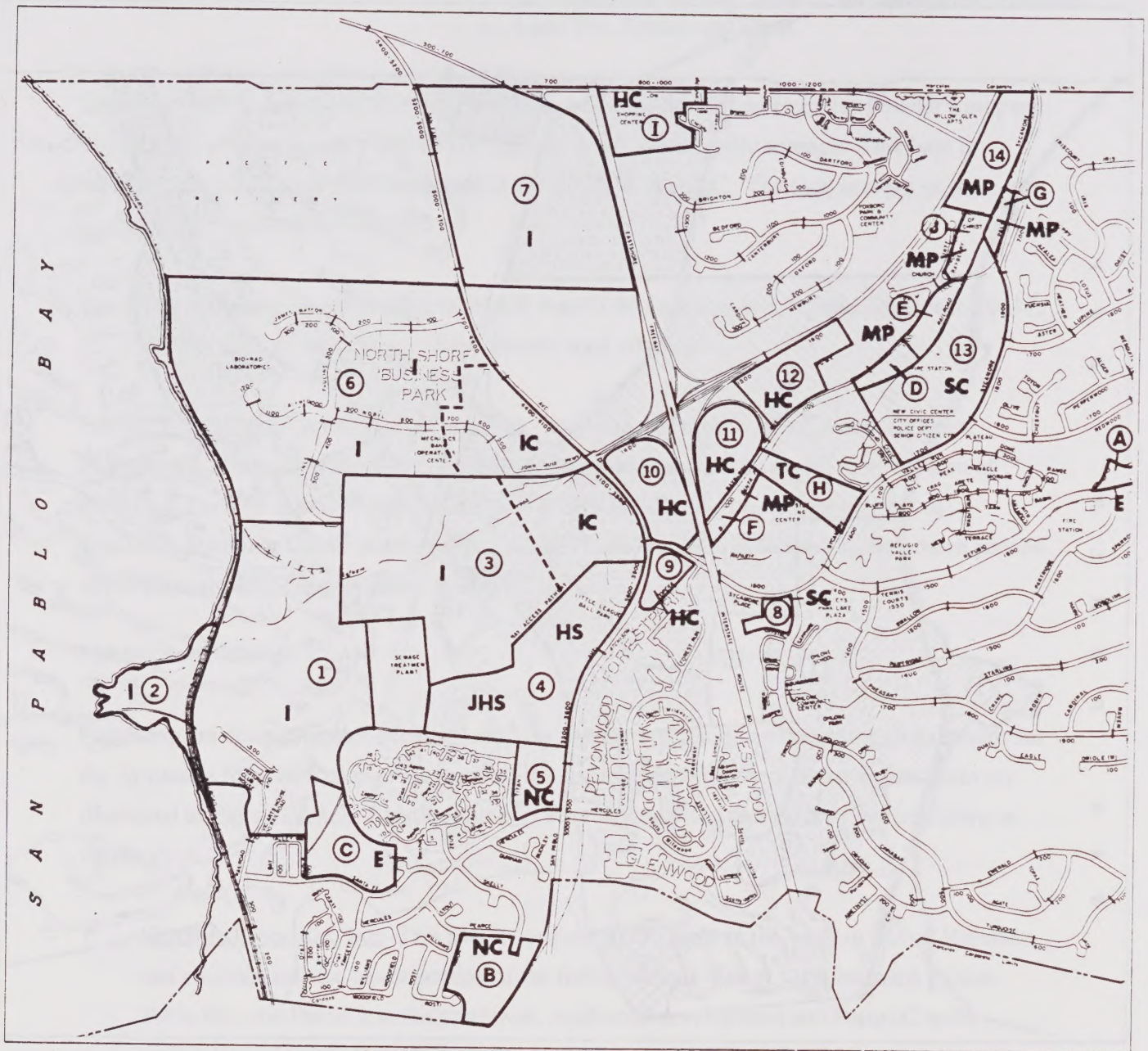
- | | | | |
|--|------------------------|--|------------------------|
| | Vacant / Open Space | | Historic District |
| | Business Park | | Commercial |
| | Former Industrial Site | | Commercial / Storage |
| | Recreation | | Public / Semi-Public |
| | | | U/C Under Construction |



SOURCE: Environmental Science Associates

Hercules General Plan Land Use and Circulation Elements Update / 930314 ■

Figure IV.A.1
Existing Land Use



① / (A) Parcel Reference	PUBLIC	COMMERCIAL	INDUSTRIAL
	E Elementary School JHS Jr. High School HS High School MP Multi-Purpose	TC Town Center SC Service HC Highway IC Industrial NC Neighborhood	I Industrial

SOURCE: City of Hercules; Environmental Science Associates

Hercules General Plan Land Use and Circulation Elements Update / 930314 ■

Figure IV.A.2
Existing General Plan
Land Use Designations

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

Other uses are the historic company town and residences along Railroad Avenue. The original town center sits on a hill within the parcel that overlooks San Pablo Bay and the chemical plant site.

Approximately 40 to 50 buildings of various sizes occupy portions of this parcel. These structures are of various types of construction including brick, wood-frame with metal siding, and typical wood-frame residential construction. Some of the structures are in disrepair and are no longer occupied. Other remaining structures are rented to small businesses. These businesses include a variety of small machine shops, construction firms, storage, and other industrial-type services, as well as some office space. The majority of the occupied structures are located in the hilly area in the southwest portion of the site, with most of the businesses having access from Railroad Avenue. A couple of businesses operate in the lower elevations of the northwest portion of the property, but this area is occupied primarily by the non-operating components of the former gunpowder and fertilizer plants (Engineering Science, Inc., 1989).

A designated Historic District has been established along Railroad Avenue in the southwestern portion of the parcel. This District is listed on the National Register of Historic Places. Alterations to buildings within the Historic District must comply with the State Historic Building Code regulations which are intended to facilitate restoration so as to preserve a historic structure's original or restored architectural elements and features.

In addition to the historic industrial development on the site, there are approximately 35 acres of the site which are mainly undeveloped.

The Southern Pacific Railroad has a 100-foot right-of-way that passes along the bay shoreline on the northwest edge of the parcel. The four sets of tracks within the right-of-way are used daily, by AMTRAK passenger trains and freight trains. The tracks, which are fenced on each side for safety purposes, physically separate the unused powder plant and ammonia tank which are located on Hercules Point (Parcel 2) from the main portion of the chemical plant. The Pacific Gas and Electric Company (PG&E) has a 16-inch fuel oil pipeline that traverses the site. This pipeline, which runs from the Chevron facilities in Richmond to Pittsburg, is located on the bay side (i.e., west side) of the Southern Pacific Railroad right-of-way. The line runs roughly parallel to the railroad tracks, but is not within the railroad right-of-way.

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

Adjacent to Parcel 1 is a 12-acre parcel owned by the City of Hercules, situated between Parcels 1, 3 and 4, that contains the Hercules Sewage Treatment Plant and the former Western Contra Costa Transit Authority (WestCAT) vehicle storage and maintenance facility.

The southern and southwestern portions of Parcel 1 are bounded by residential uses. Just south and west of the sewage treatment plant is the Olympian Hills Townhouse development. This medium density, multifamily (R2) project has approximately 300 attached dwelling units at a density of roughly 8 units per acre. West of the Olympian Hills project is the Historic Homes of Hercules, a restoration project of 22 single-family homes. These Victorian-style homes are rehabilitated workers' houses from the historic company town of the Hercules Powder Company. Located to the south of these two residential developments is the Bedford-by-the-Bay residential development. This single-family (attached and detached) area is developed with homes on a variety of lot sizes ranging from 2,500 to 6,000 square feet.

An undeveloped 5.4-acre lot is located in the western corner of this parcel. This area, which comprises the area between Railroad Avenue and the shoreline, is designated in the current *General Plan* to be part of a waterfront park. The East Bay Regional Park District plans for the park to be part of its San Pablo Bay Regional Park system. The Park District currently leases the parcel from the State of California, which owns it.

2. Hercules Point. This parcel consists of a 15-acre peninsula in San Pablo Bay, located bayward of the Southern Pacific Railroad tracks. The tracks, which are fenced on each side for safety purposes, physically separate the former powder plant and ammonia tank which are located on Hercules Point (Parcel 2) from the main portion of the plant. The only connection between the mainland areas (Parcel 1) and Hercules Point is provided by a wooden trestle southwest of the former powder plant. This parcel is zoned M - Industrial District, and has a *General Plan* designation of I - Industrial.
3. Gelsar Inc. This parcel consists of approximately 104 acres and is bounded by San Pablo Avenue and Parcel 4 on the east and south, Parcel 6 to the northeast, and Parcel 1 and Hercules' sewage treatment plant to the west. Refugio Creek flows through the middle of this parcel and much of the property lies in the broad flood plain. The land was once used for storage of industrial products associated with the former Hercules Powder Company

but is currently undeveloped. The majority of it exists as grassland and woodland. There are piles of rubble consisting of old building materials and concrete in various locations throughout the parcel, possibly the ruins of old explosives bunkers from the former industrial operations. The western portion of this parcel is zoned M - Industrial District, and has a *General Plan* designation of I - Industrial. The eastern portion, which fronts along San Pablo Avenue, is zoned CM - Commercial Industrial District and has a *General Plan* designation of IC - Industrial Commercial.

4. Hercules Inc./San Pablo Site. This parcel consists of approximately 41 acres that are bounded by San Pablo Avenue to the south and southeast, Parcel 3 and the sewage treatment plant to the north and northwest, residential development to the west, and Parcel 5 to the southwest.

Most of this parcel is undeveloped. The only current use is a temporary Little League baseball park just west of the intersection of Sycamore Avenue and San Pablo Avenue. The majority (39.1 acres) of this undeveloped area, which extends from Sycamore Avenue to north of Hercules Avenue, is designated in the *General Plan* as the site for future junior and senior high schools. The current zoning for most of the parcel is Single-Family Residential (R-1), and part is zoned as Highway Commercial (CH). The West Contra Costa Unified School District (formerly Richmond Unified School District) considered these parcels for an additional junior high and high school. Based on the school district's decision not to develop schools on this property, the landowner has requested a *General Plan* amendment and zone change. (Other sites in Hercules are now designated school sites; see Section IV.F, Public Services and Utilities, for a discussion of school impacts.)

5. MRB Site. This parcel consists of about 6 acres and is bounded by San Pablo Avenue on the southeast, Hercules Avenue on the southwest, Titan Avenue and residential development on the northwest, and Parcel 4 on the northeast. The parcel consists of undeveloped eucalyptus woodland and open grassland. There are several old concrete building foundations on the parcel that appear to be remnants of storage buildings associated with the former Hercules Powder Company. Zoning for this parcel is CH - Highway Commercial District, and the *General Plan* designation is NC - Neighborhood Commercial.

IV. Environmental Setting, Impacts and Mitigation Measures
A. Land Use, Zoning and Plans

6. North Shore Business Park. This 144-acre parcel was developed as a business park in the 1980s, and was the subject of a 1982 EIR on the business park development (City of Hercules, 1982). It is bounded by San Pablo Bay to the northwest, Pacific Refinery to the northeast, San Pablo Avenue to the southeast, and Parcels 1 and 3 to the southwest. The eastern half of the business park has multiple owners. This portion of the business park is divided into 16 graded development sites, of which two are occupied. The northwestern, or bay shore, part of the business park is owned and occupied by Bio-Rad Laboratories. The entire property has been graded to accommodate eventual development, and infrastructure, in the form of roads and utilities, has already been installed. Zoning on the parcel is M - Industrial District. The *General Plan* designation for the majority of the park is I - Industrial, and is IC - Commercial Industrial for three lots at the southeast corner of the park.
7. ANR Site. This parcel consists of approximately 62 acres that have been leased as grazing land for cattle. It is bounded on the southwest by an unused PG&E petroleum and gas tank farm, on the southeast by I-80, on the northwest by San Pablo Avenue and the Pacific Refinery, and on the northeast by the unincorporated community of Rodeo. This property is owned by a subsidiary of the Coastal Corporation (also partial owner of the Pacific Refinery in northwestern Hercules). The parcel is zoned M - Industrial, and also has a *General Plan* designation of I - Industrial.
8. Hercules Square Site. This parcel consists of slightly less than 3 acres and is located at the corner of Turquoise Drive and Sycamore Avenue. It is currently developed with professional and retail services. It is situated in a CR - Retail Commercial zoning district and is surrounded by other commercial uses, including Park Lake Plaza to the southeast, and a townhouse development to the southwest. The *General Plan* designation is SC - Service Commercial.
9. ORB Site. This parcel is an isolated 3.5-acre site bounded by the Santa Fe Railroad line on the south, Sycamore Avenue on the east, and San Pablo Avenue on the north. The parcel is approved for construction as a small-scale commercial center, including retail stores and a service station, and has already been graded. Current zoning is CH - Highway Commercial District, and the *General Plan* designation is HC - Highway Commercial.

IV. Environmental Setting, Impacts and Mitigation Measures
A. Land Use, Zoning and Plans

10. BART Site. This parcel consists of about 6.6 acres and is bounded on all four sides by roadways - on the north by SR 4, on the west by San Pablo Avenue, on the south by Sycamore Avenue, and on the east by I-80. This parcel is owned by the Bay Area Rapid Transit District (BART) and is planned for eventual use as a BART station site. It is currently under construction as a transit center that will link AC Transit, BART express, and Western Contra Costa County Transit Authority (WestCAT) buses, and provide park-and-ride parking. Current zoning is CH - Highway Commercial District, and the *General Plan* designation is HC - Highway Commercial.
11. I-80 Exit Loop Site. This parcel consists of approximately 6.3 acres of land that is bounded by roadways on all sides, I-80, the exit ramp loop for SR 4, and Bayberry Avenue. This undeveloped parcel is a depression whose steep sides are formed by large volumes of fill material deposited during construction of the surrounding roadways. The East Branch of Refugio Creek flows through the middle of the parcel, entering and exiting from culverts. Zoning is CH - Highway Commercial, and the *General Plan* designation is HC - Highway Commercial.
12. TABCO Site. This site consists of approximately 9 acres and lies between Bayberry Avenue and SR 4. It also lies adjacent to both PG&E and Caltrans corporation yards. The parcel is currently undeveloped grassland. Zoning is CH - Highway Commercial and the *General Plan* designation is HC - Highway Commercial.
13. Sycamore Site. This site consists of approximately 25 acres and is located directly east of, and downslope from the Civic Center. It is bounded on the north by the Santa Fe Railroad line and on the south by Sycamore Avenue. It is currently undeveloped grassland. Zoning is CR - Retail Commercial and the *General Plan* designation is SC - Service Commercial.
14. Five Giants Site. This parcel consists of approximately 7 acres and fronts directly on SR 4 near the northern boundary of the City. The parcel is currently undeveloped grassland. Zoning is MR - Restricted Industrial, and the *General Plan* designation is MP - Multi-Purpose Public.
- A. Church of the Nazarene. This parcel consists of approximately 5 acres and fronts Refugio Valley Road near Partridge Drive. A single-family residential development is located behind the parcel. Refugio Creek extends through the parcel towards Refugio Valley Park.

IV. Environmental Setting, Impacts and Mitigation Measures
A. Land Use, Zoning and Plans

The current use of this parcel is for open space and recreation. Areas of the parcel adjacent to Refugio Valley Road are denuded of vegetation, and areas adjacent to Refugio Creek contain riparian vegetation, and shrubs and small trees. A paved trail crossing the site is used for bicycling and walking. Zoning is R2 - Medium Density Multi-Family Residential, and the *General Plan* designation is E - Public Elementary School.

- B. McLeod. This isolated parcel consists of approximately 7.4 acres in the southwest area of the City. Structures on the site include one single-family residence, several sheds, horse stalls, and fencing. Defunct farm equipment on the site includes a truck, tractor, and various heavy equipment attachments. Adjacent uses include residential to the west and south, and railroad tracks on the east. The Santa Fe railroad tracks are the City boundary. The parcel is currently used for horse ranching activities. Zoning is R1 - One Acre Residential District, and the *General Plan* designation is NC - Neighborhood Commercial.
- C. Citation. This parcel consists of 5.6 acres adjacent to Santa Fe Road. Vegetation on this parcel includes grasses and mature eucalyptus trees. The parcel is currently undeveloped. Surrounding uses include single-family homes of the historic Hercules Powder Company and a newer residential subdivision, open space, and a swimming pool owned and operated by the nearby homeowners association. The two adjacent residential areas are connected with a paved trail that meanders through the site. Zoning is R1 - One Acre Residential District, and the *General Plan* designation is E - Public Elementary School.
- D. Carone - 1. This parcel consists of 2 acres along Bayberry Avenue, in the northern area of the City. The current use of this parcel is for storage of construction related supplies. Dirt piles, cable spools, steel storage boxes and heavy equipment are among the items stored on this parcel. With the exception of some bushes along Bayberry Avenue, this site is denuded of vegetation. Adjacent uses include the Caltrans storage yard across Bayberry Avenue to the north, storage areas on the Carone - 2 parcel to the east, and the Santa Fe Railroad tracks to the south. Zoning is MR - Restricted Industrial District, and the *General Plan* designation is MP - Multi-Purpose.
- E. Carone - 2. This parcel consists of 1.8 acres along Bayberry Avenue, in the northern area of the City, and adjacent to the Carone - 1 parcel. Similar to Carone -1, this parcel is also used for storage of construction related supplies. Steel and cement pipe, a backhoe, and storage sheds are among the equipment stored on the site. The only structure on the site is

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

a single-story office and storage building. With the exception of bushes along Bayberry Avenue, the site is denuded of vegetation. Surrounding uses include the storage area on the Carone - 1 parcel, the Santa Fe Railroad tracks and the Caltrans storage yard. Zoning is MR - Restricted Industrial District, and the *General Plan* designation is MP - Multi-Purpose.

F. Carone - Sycamore. This parcel consists of 2.6 undeveloped acres adjacent to the Southern Pacific Railroad Tracks, Sycamore Avenue, I-80, and the Creekside Shopping Center. The parcel consists of a lowland area and a higher ridge. Riparian vegetation, trees and shrubs grow on the lower portions, and grasses grow on the ridge of the parcel. Zoning is CH - Highway Commercial, and the *General Plan* designation is MP - Multi-Purpose.

G. Old A.T.S.F. This parcel consists of 1.7 acres located along Bayberry Avenue, east of the Santa Fe Railroad Tracks. Grasses and small shrubs grow on this parcel. Existing structures on the project site include a Santa Fe transmitter/receiver box and telephone poles. A dirt access road extends from Bayberry Avenue to the railroad tracks and a transmitter/receiver box. Construction debris, litter and a few dirt piles are scattered along the access road. The adjacent land uses are for the Santa Fe Railroad tracks, Bayberry Avenue and open space. Parcels 14 and J are located to the north. Zoning is MR - Restricted Industrial District, and the *General Plan* designation is MP - Multi-Purpose.

H. Creekside. This parcel consists of 25.3 acres including and adjacent to the Creekside Shopping Center on Sycamore Avenue. The existing Creekside Center occupies the western three-fourths of the site, while the eastern portion is undeveloped. A portion of the undeveloped area is covered with paved parking, while the remainder is a graded lot. Recycling activities and occasional automobile parking are the only activities that currently occur on the undeveloped portion of the site. The Civic Center is east of the parcel, and single-family residential uses are south of the parcel across Sycamore Avenue. The Santa Fe railroad tracks cut across the southern portion of this parcel. Zoning is CR - Retail Commercial District, and *General Plan* designation is TC - Town Center.

I. Willow Center. This parcel consists of 3.4 acres located adjacent to the northern perimeter of the City, along Willow Avenue. Adjacent uses include the I-80 and Willow Avenue roadways, and open space. This mostly developed parcel is the site of the Willow

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

Shopping Center. A food market and gas station are among the main uses on this site. A portion of the site close to Willow Avenue is undeveloped. The proposed Land Use Element would bring this developed parcel into conformance with the *General Plan*. Zoning is R2 - Medium Density Multi-Family Residential, and the *General Plan* designation is HC - Highway Commercial.

- J. Church of Christ. This parcel consists of approximately 7 acres, located adjacent to the Valley Bible Church in the vicinity of the Bayberry Road / Santa Fe Railroad overcrossing. The parcel is currently undeveloped; Parcel J is adjacent to Parcels B, 14, E and G. Zoning is CR - Retail Commercial District, and the *General Plan* designation is SC - Service Commercial.

Current Zoning Designations

All of the properties proposed for redesignation lie within the Hercules city limits and are subject to the City's zoning ordinance. The City's zoning ordinance currently designates the majority of the study area as Industrial (M), Commercial Industrial (CM), Restricted Industrial (MR), Commercial Residential (CR) and Commercial Highway (CH). Part of Parcel 4 is zoned Single-Family Residential (R-1).

The zoning ordinance identifies the Industrial District (M) as an area reserved for a variety of industrial uses, including typical light and heavy industrial uses as well as large-scale administrative and research facilities and specialized industries. The Commercial Industrial (CM) District is intended to provide a transition between Commercial Highway (CH) and Industrial (M) Districts. The Restricted Industrial (MR) District is for light industrial and commercial/industrial uses. Banks, research labs, printing, and warehouses are examples of permitted uses in the MR District.

The Commercial-Residential (CR) and Commercial-Highway (CH) Districts are included in the zoning ordinance to reserve appropriately located areas for professional and administrative offices outside of retail shopping areas, and serving close-by residential areas. Examples of uses permitted in the CR District are entertainment and retail establishments. Permitted uses in the CH District include everything permitted in the CR District, in addition to repair shops, hotels and motels, and automobile repair and retailers.

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

The R-1 (one-family) district permits single-family dwellings at a density of up to 7.2 units per acre (minimum lot size 6,000 square feet). The Historical Overlay District (H) applies, in addition to the existing zoning, in the Historic Hercules area in the western corner of Parcel 1, Hercules Properties Inc. The purpose of the Historical Overlay District is to preserve, enhance, promote, and expand the cultural and historical identities, characters and environments of the identified area. The Historical Overlay District restricts the alteration of existing structures within the overlay district and limits construction or relocation of buildings to those with similar historical and cultural significance. This District focuses on the former powder company buildings and does not include any of the former plant equipment.

The Hercules Zoning Ordinance also provides a Planned Unit Development (PUD) process that could allow for the "clustering" of allowed uses and variation in design standards in any development proposed for the properties. The PUD is defined as a "combination of different dwelling types and/or a variety of land uses which complement each other and harmonize with existing and proposed land uses in the vicinity." The PUD process differs from standard zoning designations in that it allows requirements to be applied to the project site as a whole. This allows for a greater variety of development than in conventional districts. PUD requirements, guidelines, and regulations can be found in Title 10, Chapter 1, Article 8 of the Municipal Code of the City of Hercules (City of Hercules, 1985).

Plans and Policies

This section is a discussion of plans and policies related to land use issues. Plans and policies related to other issues are discussed in other sections of this EIR.

Approved and Reasonably Foreseeable Projects In and Near Hercules

Several projects have recently been approved in the vicinity of the project area. As noted previously, a commercial project is under construction on Parcel 9, and Parcel 10 is being developed as a transit center. The City has approved development of 166 residential units, and up to about 800 units are proposed for development in Franklin Canyon.¹ Pacific Refinery has proposed to expand its operation through a fuel modification process. Refer also to Section IV.C, Population, Employment and Housing. South of Hercules, the City of Richmond recently

¹ Buildout date for the Franklin Canyon project is uncertain; this EIR assumes that development will be complete by 2010. Further environmental review of this project would occur prior to development. Approval could be granted for a smaller project of about 600 residential units plus a hotel.

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

approved an updated General Plan, while the City of Pinole is in the process of updating its General Plan. Several commercial and residential projects totaling up to about 4 million sq. ft. of commercial space and about 2,000 dwelling units are proposed in Richmond and San Pablo; traffic that would be generated by those projects is included in traffic forecasts contained in the West County Traffic Model, which was used in the analysis for this EIR (see Section IV.B, Transportation and Circulation).

City of Hercules General Plan

All of the parcels lie completely within the City of Hercules and are thus subject to the policies of the City of Hercules' *General Plan*. The *General Plan* outlines objectives, goals, and policies to guide land use within the City's boundaries and consists of nine separate elements. The *General Plan* was adopted in 1985, although individual elements have been updated and new elements adopted since that time. The individual elements of the *General Plan* that most directly affect the proposed land use designations are summarized below.

Economic Development Element. The City in 1991 adopted an Economic Development Element of its *General Plan* that establishes a framework for pursuing economic development with the goal of generating increased revenue and business activity while at the same time maintaining "Hercules' special quality of life." Under the Economic Development Element, the City seeks to move toward a balance between residential and commercial development.

The Economic Development Element was drawn up to implement the City's Economic Development Strategy Plan, which was prepared in 1990 by a City Council-appointed task force. The Plan describes the state of the City's economy and its development potential. The need for an examination of the City's economic future was a result of the impending completion of what had been an explosive period of residential growth -- accompanied by development fees -- without the concurrent development of a substantial retail or commercial sector.

A key finding of the task force was that economic development alone will not ensure financial stability for Hercules. However, the task force did identify economic development as an integral component of the City's attempt to strengthen its financial position in the face of declining revenues and increasing costs.

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

Another key finding is that commercial and industrial land is still available as a resource; however, benefits from industrial development are not likely to occur in the immediate future due to current market conditions (City of Hercules, 1990). The proposed Land Use Element Update is the City's response to the findings of the task force. As such, the Land Use Element Update emphasizes designated non-industrial land uses, including retail, service, office, and mixed-use development, and designates less land for industrial use than the current Land Use Element.

Housing Element. The Housing Element was last updated in June 1990; it is currently being updated again. The current (approved) Housing Element identifies Parcel 4 (Hercules Inc.) as a potential major source of land for housing development; it does not foresee development of as much housing as proposed under the Land Use Element Update, because it anticipates housing construction at a single-family density, as opposed to the multi-family dwellings proposed as part of the project. The existing Housing Element also identifies housing opportunity sites on Parcels 5, 13, A, and B, at what is now the Civic Center, and in the area of the Tiffany Ridge development on Turquoise Drive, a largely built-out area south of Parcel 8. The proposed Housing Element acknowledges the Community Panel recommendation for multi-family housing on Parcels 1, 3, 4, 5, 13, A, B, and C.

The existing Housing Element is adopted City policy. It contains a policy that calls for an increase in housing production of 1,262 units, including 353 low- and very-low-income units, during the period 1990-1995 (Policy 1.1). The goal of the 1990 Housing Element was to increase the amount of affordable housing at a variety of densities and price levels. Among the programs discussed in the adopted and proposed Housing Elements for achieving affordable housing is an inclusionary housing requirement that would require that residential projects of 10 or more units make at least 10 percent of those units affordable to low- or moderate-income households. If this proves impractical, a developer may contribute in-lieu fees to a City housing fund (Program 1.e). These policy recommendations have not yet been implemented by the City.

Other goals and policies of the adopted and proposed Housing Elements include:

- New housing development should include homes at various densities and price levels, both lower and higher than presently available. (Policy 1.2)
- Provide well-designed, well-built housing units for low- and moderate-income households in mixed-density developments, including Planned Unit Development (PUD), avoiding a concentration in any limited area. (Policy 2.1)

IV. Environmental Setting, Impacts and Mitigation Measures

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- Provide a sufficient number of housing units to meet the special needs of senior citizens, physically disabled, homeless, large families, and female-headed households. (Goal 3)
- Encourage the provision of low-income housing units, especially for single persons, single parents, elderly, and young families. (Policy 3.3)

Open Space / Conservation Element. The basic objective of the *General Plan* Open Space / Conservation Element is to provide for both human and environmental needs in creating a natural environment compatible with urban development by the wise use and enhancement of natural resources within the City. The Open Space / Conservation Element identifies riparian areas, chaparral, oak groves, salt marsh, and greenways within the City that should be preserved in their natural state. The Open Space and Conservation Plan map identifies the general areas where the above environmental attributes occur. Riparian areas occur on Parcels A, C, and F and wetlands occur on Parcels 1, 3, 4, 11, 12, A, and C.

Seismic Safety / Safety Element. The Seismic Safety / Safety Element was most recently approved, as updated, by the City Council in October, 1990. The Element identifies the geology, seismic hazards, geologic hazards, fire hazards, and flood hazards that exist in the City. The objective of the Element is to reduce the loss of life and damage resulting from future hazards. Implementation of policies in the Element is through several community development regulations. Sections IV.I., Hydrology, and IV.J., Geology identify the potential hazards on each parcel related to flood and geology.

Other Jurisdictional Authorities and Planning Documents Relating to Land Use

Hercules Redevelopment Agency. In 1983 the Hercules Redevelopment Agency adopted a redevelopment plan for the "Dynamite Redevelopment Project." The 577-acre redevelopment area included all of the lands later analyzed in the Hercules Properties, Inc./Gelsar Specific Plan Area (Parcels 1-4), in addition to land to the north, east and south of the Specific Plan area (the Specific Plan was prepared in 1987 but not adopted). The redevelopment project was established primarily as a mechanism for eliminating blight in the old industrial area and as a means for undertaking the financing of a list of public works improvements in the vicinity. The plan did not involve the adoption of a new land use plan for the area, but instead continued the City's *General Plan* and other land use policies and controls which were in place at the time. As part of the Land Use and Circulation Elements Update, the Redevelopment Plan would be updated to reflect changes in the *General Plan*.

IV. Environmental Setting, Impacts and Mitigation Measures

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The Redevelopment Plan set forth a number of general objectives:

- Eliminate blight and environmental deficiencies, including obsolete older buildings, periodic inundation by flood waters, and deteriorated or inadequate public improvements;
- Assemble land into developable parcels with improved pedestrian and vehicular circulation systems;
- Re-plan, redesign and development of undeveloped areas;
- Strengthen retail and other commercial activities in the Redevelopment Area;
- Strengthen the economic base of the Redevelopment Area and community through installation of needed improvements to stimulate new commercial/industrial expansion, employment and economic growth;
- Provide adequate parking and open space;
- Establish and implement performance criteria to assure high site design and environmental quality;
- Expand and/or improve the community's supply of low- and moderate-income housing; and
- Preserve and restore historic structures.

In addition to these general objectives, the Redevelopment Plan also proposed several public improvement activities, including:

- Improvements to Refugio Creek, including relocation of the creek west of San Pablo Avenue, construction of a new drainage structure beneath the SP railroad tracks, construction of a box culvert near San Pablo Avenue, and construction of a bridge near the railroad tracks;
- Intersection improvements at San Pablo Avenue/SR 4, San Pablo Avenue/Sycamore Avenue, Sycamore Avenue/Willow Avenue, Sycamore Avenue/SR 4;
- Roadway improvements on San Pablo Avenue, Sycamore Avenue, the I-80 off-ramp at Willow Avenue, Willow Avenue, and SR 4 (Franklin Canyon Road);
- Design and construction of sewage lift station and force main;
- Improvements to the then-inoperative City sewage treatment plant;
- Construction of a pedestrian/vehicle overpass to serve Parcel 2;
- Flood control improvements along Refugio Creek;

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

- Relocation of utility lines; and
- Public improvements in connection with rejuvenation of industrial facilities at the former Hercules Chemical Plant.

In the years since adoption of the plan, about three-fourths of the recommended improvements have been made such as the upgrading of the sewage treatment plant, the construction of the sewer lift station and force main, and improvements to local roadways. Some improvements, such as rejuvenation of existing industrial facilities, have proved infeasible.

State Lands Commission. Parts of tidal marsh in San Pablo Bay along the shore of Parcel 2 are tidelands that fall under State Lands Commission jurisdiction. The State Lands Commission requires a Dredging Permit for any improvements to navigation, reclamation, or flood control, or as part of construction, alteration, or maintenance of structures authorized under certain sections of the Public Resources Code (Governor's Office of Planning and Research, 1991). Development of Parcel 2 could be subject to State Lands Commission review.

East Bay Regional Park District. In 1986, a Joint Powers Authority comprising the cities of Hercules and Pinole and the East Bay Regional Park District (EBRPD) undertook a Shoreline Feasibility Study to investigate the feasibility of developing a shoreline trail between Point Pinole and Lone Tree Point in Rodeo, and to identify possible trail alignments.

The feasibility study shows three possible trail alignments that fall within the study area: a pedestrian/ bicycle/ equestrian trail linking the shoreline and Historic Hercules to San Pablo Avenue; a boardwalk over the marsh/wetlands area south of Hercules Point; and a pedestrian trail along the inland side of the railroad parallel to the shoreline (Engineering Science, Inc., 1989). The City has adopted a trail alignment that runs along the shoreline through the proposed Waterfront Park south of Santa Fe Avenue, runs generally eastward along the Refugio Creek Corridor, and then runs generally northeast along San Pablo Avenue to the northern city limit, as shown in the *General Plan Open Space Element*. This alignment has not been approved by the EBRPD, although the district views the future development of the Shoreline Trail as a long-term goal.²

² The City believes that a trail along the entire City shoreline could present problems related to the safety of trail users as well as security problems for owners of shoreline properties.

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

Bay Conservation and Development Commission (BCDC). The shoreline area of Hercules is subject to the policies and regulations of the San Francisco Bay Conservation and Development Commission (BCDC) as set forth in the San Francisco Bay Plan (1969, as amended September 1988). The purpose of BCDC and the Bay Plan is the protection and conservation of the San Francisco Bay and its shoreline as a valuable natural resource. Under the state-legislated authority of the McAteer-Petris Act (1965), BCDC has regulatory permitting power within the shoreline areas in its jurisdiction. BCDC jurisdiction is defined as the band of land 100 feet shoreward from the line of highest tidal action, and in specified tributary creeks. In Hercules, the elevation of highest tidal action is about 5 to 6 feet; BCDC jurisdiction extends inland 100 feet from the 6-foot elevation line. BCDC jurisdiction would extend inland as far as the Southern Pacific railroad grade. In addition, BCDC also has advisory policies relating to activities in diked historic baylands, of which there is extensive acreage within Parcels 1, 2, 3, and 6. BCDC reviews development proposals in diked historic baylands for consistency with its policies and submits its comments to the U.S Army Corps of Engineers for their consideration.

Any development proposed within BCDC's jurisdiction requires a permit from BCDC. Permits are granted or denied only after public hearings, and review and comment by the affected local jurisdiction. In its permit process, BCDC tries to ensure the following: 1) that prime shoreline sites are reserved for priority uses (i.e., ports, water-related industry, airports, wildlife refuges, and water-related recreation); 2) that public access to the Bay is maximized and not precluded by development in areas not needed for priority uses; 3) that attractive design of shoreline development is encouraged; and 4) if salt ponds or managed wetlands are proposed for development, that consideration be given to dedication of these lands or that development be consistent with Bay Plan guidelines. The land use maps in the Bay Plan previously designated Parcel 1 as a priority use area for water-related industrial uses. However, in 1988, the Commission removed the priority use designation from this parcel. Redesignation of the parcels would, therefore, not be subject to BCDC's priority use restrictions. Redesignation would be subject to the more general policies to increase public access to the Bay, not to adversely affect the public's enjoyment of the Bay and Shoreline, and to encourage attractive shoreline development. Development within Parcel 2 would require review by the BCDC Design Review Board and the Commission's approval of a development permit prior to any construction (Engineering Science Incorporated, 1989).

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Hercules Master Environmental Assessment. The 1991 Master Environmental Assessment (MEA) was prepared for 14 of the 24 properties that are proposed for land use redesignations as part of the Land Use Element Update. The report identified existing environmental conditions on Parcels 1-14 and identified land use constraints that were considered by the Community Panel and City Staff in preparation of the City's Land Use Element Update to: identify potentially incompatible land uses; insure consistency with the zoning ordinance; and to identify City approval, where needed, for mixed-use designations.

IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA *Guidelines* establishes that a project would normally have a significant effect on existing land uses if it would: 1) disrupt or divide the physical arrangement of an established community; 2) conflict with established recreational, educational, religious, or scientific uses in an area; 3) convert prime agricultural land to urban use (or impair the agricultural productivity of prime agricultural land); or 4) conflict with adopted environmental plans and goals of the community where it is located. Appendix I of the CEQA *Guidelines* indicates that a project would have a significant effect of the environment if it would result in a substantial alteration of the present or planned land use of an area.

The land use policies and land use designations in the Land Use Element Update are discussed below in relation to the goals of protecting physical conditions and protecting people from physical impacts. The discussion notes that the land use impacts of the project, the related potential physical impacts, and the applicable technical section(s) of the EIR that address those impacts. The assessment of land use impacts includes emphasis on potential incompatibilities resulting from the proposed land use designations, and the effects of the Land Use Element Update on overall land use patterns.

Land Use Development and Patterns

The proposed land use designations are discussed by geographic area of the City. The Lower Drainage Floodplain area is the relatively large, undeveloped area in the western part of the City near San Pablo Bay. This area includes the majority of study area acreage and is generally bound by San Pablo Avenue, Hercules Avenue, and San Pablo Bay. The Lower Drainage Ridges and Plateau parcels comprise the higher elevations and perimeter of the Floodplain. These

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

parcels are located along San Pablo Avenue. The Upper Drainage Riparian Valley includes parcels along State Route 4, Sycamore Avenue, and Refugio Valley Road. Figure IV.A.1 shows existing land use. Figure IV.A.3 shows the proposed *General Plan* land use designations.

Lower Drainage: Floodplain (Parcels 1-4, C)

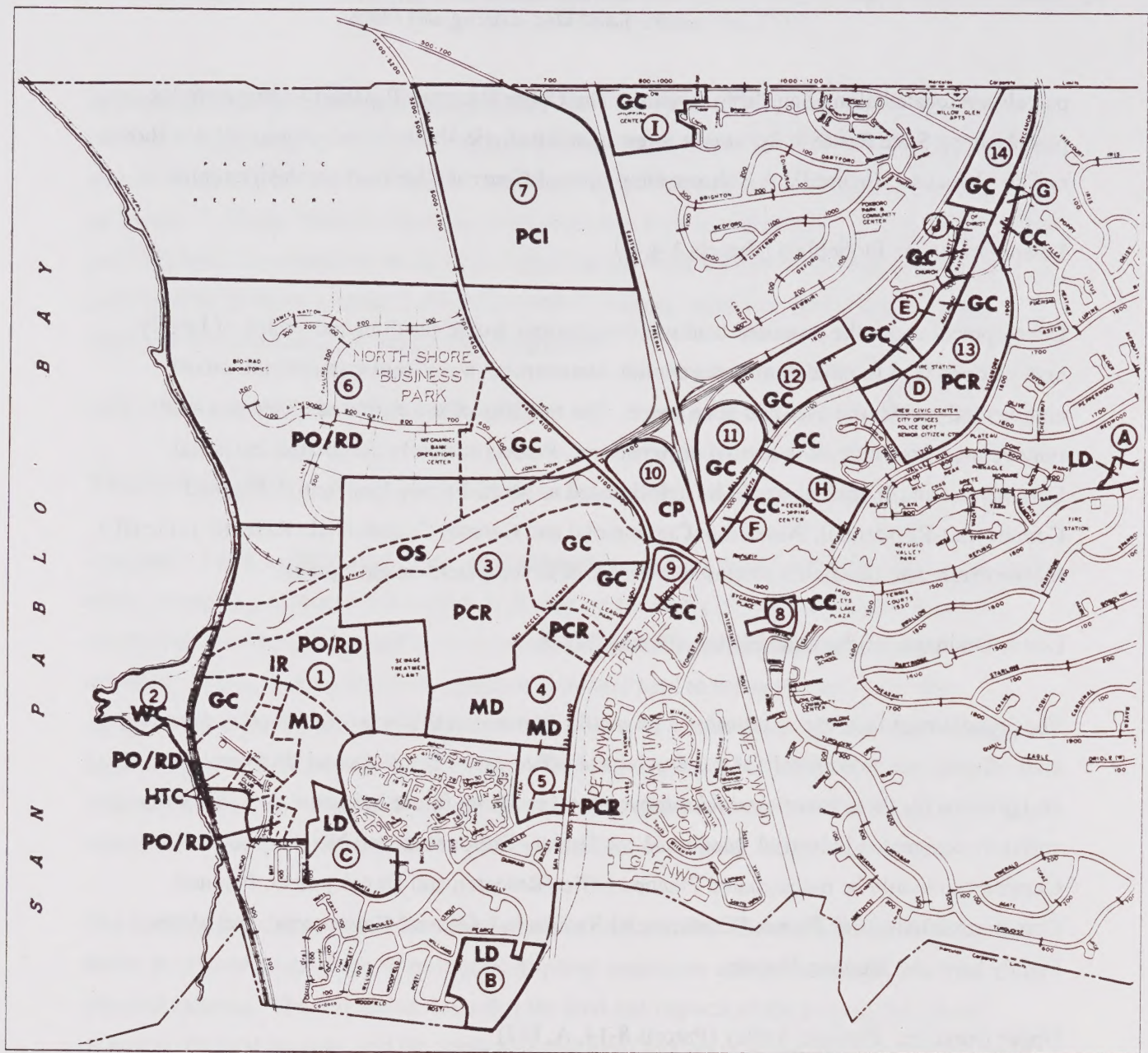
Development under the proposed land use designations would result in conversion of largely undeveloped land to multi-family residential, commercial, waterfront-commercial, mixed commercial-residential uses and open space. The majority of the proposed changes would remove land from current industrial designations. Parcels currently designated Industrial Commercial and Industrial would be redesignated as Multi-Family Residential, Planned Commercial-Residential, Waterfront Commercial and General Commercial. Refer to Table III.1 for the nature and maximum proposed intensity of development on each parcel.

Lower Drainage: Ridges and Plateau (Parcels 5-7, B)

The predominant land use as business park would continue in this area. Buildout would convert undeveloped land to commercial, residential and office uses. The proposed land use designations for these parcels would remove most land from future industrial uses. Parcels currently designated Industrial, Medium-Low Density Residential, and Neighborhood Commercial would be redesignated Planned Office/Research and Development, Planned Commercial-Industrial, Planned Commercial-Residential, General Commercial, and Multi-Family Low and Medium Density.

Upper Drainage: Riparian Valley (Parcels 8-14, A, D-J)

Development would convert these largely undeveloped parcels to commercial, residential and mixed commercial-residential uses. The proposed land use designations would result in new commercial uses along SR 4 and Sycamore Avenue, and bring one developed parcel into conformance with the *General Plan*. Parcels currently designated Service Commercial, Multi-Purpose Public, and Highway Commercial would be redesignated as General Commercial, Community Commercial, Planned Commercial-Residential, and Multi-Family Low Density, with one parcel to be designated Public/Semi-Public. Refer to Table III.1 for the nature and maximum proposed intensity of development on each parcel.



①/A Parcel Reference

RESIDENTIAL

- LD Multi-Family Low Density
- MD Multi-Family Medium Density

COMMERCIAL

- WC Waterfront Commercial
- GC General Commercial
- CC Community Commercial
- CP Commercial Public

PUBLIC

- OS Open Space Creek Corridor

EMPLOYMENT

- PO/RD Planned Office-Research & Development

MIXED

- PCI Planned Commercial-Industrial
- PCR Planned Commercial-Residential
- IR Industrial Residential
- HTC Historic Town Center

Hercules General Plan Land Use and Circulation Elements Update / 930314 ■

SOURCE: City of Hercules; Environmental Science Associates

Figure IV.A.3
Proposed General Plan
Land Use Designations

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

Impacts Resulting from the Proposed Land Uses and Redesignations

Impact Land Use-1: Development consistent with the proposed Land Use Element could result in conflicts between incompatible land uses. This would be considered a significant impact.

Implementation of the proposed land use designations would result in an increase in mixed-use development, particularly the proposed Planned Commercial-Residential designation. Mixed-use development is encouraged by Objective 12 of the proposed Land Use Element Update, which provides for integrated uses in one structure. Mixed-use development may have beneficial results, such as increasing proximity of residents to stores and shopping or work. This could result in reducing vehicle travel, with an associated reduction in vehicle emissions, below that which would occur with more segregated land uses.

Mixed-use development also has the potential for land use incompatibilities, that is, conflicts related to the potential effects of any one of the uses within a project conflicting with or affecting another within the same site. Examples of potential incompatibilities from mixed-use development include a late-night retail or restaurant activity conflicting adjacent residential uses, and industrial uses conflicting with commercial or residential uses. Land use incompatibilities could also occur if a new use is developed adjacent or near to a conflicting existing (developed, agricultural or undeveloped) use.

In Hercules, land use compatibility conflicts could occur in areas where the proposed Land Use Map calls for potentially conflicting uses to be located next to each other. Land use incompatibilities would include noise, dust, light and glare, or other activities that would affect the character of an adjacent area. The location of each proposed land use designation is shown on Figure IV.A.3.

Locations where potential new conflicts could be introduced include:

- Hercules Point, Historic Company Town, where new land use designations in a small geographic vicinity would include Waterfront Commercial, Industrial-Residential, Multi-Family Residential and Historic Town Center (Parcels 1 and 2). Multi-family medium density units and Planned-Office Research and Development would be adjacent uses.
- Parcel 13, which would be redesignated as Planned Commercial-Residential.
- Areas west of and adjacent to San Pablo Avenue that would be redesignated as partially or entirely mixed-use (Parcels 3, 4, 5).

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

- Parcel A on Refugio Valley Road, which would be developed under the Multi-Family Low Density designation adjacent to Refugio Creek.
- Parcels 1, 3, and 4, which would be developed with Multi-Family Medium Density and Planned Commercial-Residential land uses adjacent to the Sewage Treatment Plant.

Impact Land Use-1: Mitigation Measures Proposed as Part of the Project

Implementation of the following proposed Land Use Element goals and policies would reduce the potential for land use incompatibility:

Planned Commercial-Residential definition: The definition of the proposed Planned Commercial-Residential land use designation includes the stipulation that "development of these properties shall be carefully planned to insure that the benefits of mixed-use development are fully realized, and the potential negative impacts of one use on another are minimized." In addition, commercial structures and uses "shall be developed according to a master plan. . . ."

Policy 2A: Commercial and industrial development shall be consistent with gross intensity ranges in the land use diagram and land use categories. Higher intensity may be permitted if such development is consistent with the City's Economic Development Strategy and with specific findings made by the Planning Commission. The findings are: the development's benefits in terms of number and quality of jobs, or revenues generated for the City, are significantly greater than would be achieved without the higher intensity; the proposal is compatible with surrounding development and in keeping with the desired character of the community; and the impacts of the increased intensity are fully analyzed and mitigated, if possible.

Policy 3D: Create a strong and successful focus or center for business and activities that would provide services and shopping opportunities for, and would attract employees, clients, and patrons from a regional area, while not disturbing existing residential and community oriented areas.

Concept 4: A limited amount of new residential development should be allowed on vacant properties that adjoin existing neighborhoods and that are more closely associated with existing neighborhoods than the employment or commercial areas. Buffers should be established between the residential and non-residential areas.

Policy 5A: Residential development shall be consistent with gross density ranges in the Land Use Categories and Land Use Diagram. Higher densities may be permitted that are consistent with State density bonus requirements. Lower densities may be permitted only when specific findings are made by the Planning Commission. The findings are: the development would be compatible with the surrounding neighborhood and would not have a detrimental effect on existing or future multi-family development, or existing or future commercial development; and the reduced density will not prevent the City from achieving its goals for low and moderate income housing, as set forth in the Housing Element.

IV. Environmental Setting, Impacts and Mitigation Measures
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Policy 13A: Create a transition between residential neighborhoods and the commercial and industrial areas, except where such mixed uses are desirable (e.g., live/work space and other designated areas). The transition should separate land uses that might be incompatible if located in close proximity. Land uses that minimize adverse impacts and those that would not impact adjoining properties should be encouraged.

Impact Land Use-1: Mitigation Measures identified in other *General Plan* Elements

None identified.

Impact Land Use-1: Additional Mitigation Measures Identified in this EIR

The City shall incorporate the following policies into the proposed Land Use Element Update of the City's General Plan:

Encourage commercial and industrial facilities to enhance and complement the surrounding areas by utilizing compatible architecture and landscaping.

Accommodate planned commercial-industrial and industrial-residential uses in areas buffered from adjacent uses that may be incompatible.

New commercial development should not adversely affect the quality of the City's residential neighborhoods or Hercules Historic District.

Require new development along the bay shoreline to provide a reasonable degree of buffering between such development and adjacent salt and mud flat areas.

Require proposed new development with potential conflicts to demonstrate that such conflicts can be minimized or mitigated to an acceptable level before the development is approved.

Impact Land Use-1: Significance After Mitigation

Implementation of the mitigation measures listed above would reduce the impact to a less-than-significant level.

Impact Land Use-2: Implementation of the proposed Land Use Element Update would allow increased density and increase the urban land use within the City and would change the distribution of land uses. Development consistent with the proposed Land Use Element Update would result in patterns of development that differ from existing development patterns, resulting in impacts related to both traffic patterns and changes in land use compatibility. This is considered a significant impact.

Changes in land use designations under the proposed Land Use Element Update would result in an overall increase in mixed-use, residential, commercial and research and development land

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

uses. These designations would replace current land use designations of industrial, highway commercial, industrial-commercial, and multi-purpose designations.

Office and research and development uses would be the predominant land uses on currently undeveloped and unused land west of I-80. Residential development west of I-80 would intensify because of the proposed multi-family uses. The concentration of increased employment and residences in the western portion of the City due to intensification of land use would alter existing traffic patterns and convert undeveloped land to urban uses. The impacts of the patterns of development proposed in the Land Use Element Update on transportation are discussed in Section IV.B, Transportation and Circulation.

The concentration of increased employment in the western portion of Hercules due to intensification of office / research and development and waterfront commercial uses would alter existing traffic patterns and convert vacant lots to urban uses. The impacts of the patterns of development proposed in the draft Land Use Element Update on transportation are discussed in Section IV.B, Transportation and Circulation.

If the proposed patterns of development, as well as proposed Land Use Element policies were to substantially increase vehicle miles traveled by automobile, then significant impacts on traffic, air quality and noise would occur as a result of growth within the City. The extent of these impacts depends on the choice of individuals about where they live and work, and how they travel. Impacts on traffic are discussed in Section IV.B, Transportation and Circulation. Air quality impacts are discussed in Section IV.K.

Impact Land Use-2: Mitigation Measures Proposed as Part of the Project

The following mitigation measures are proposed policies in the Land Use Element Update.

Policy 3A: Develop transportation facilities to provide access to the region, particularly public transit systems (buses, ride sharing, and rail transit, as well as potential water transit).

Policy 3B: The Land Use Element and Circulation Element need to be closely coordinated to insure that traffic from new development will not overwhelm the carrying capacity of the circulation system.

Policy 3C: Reasonable traffic flow and direct access between neighborhoods should be provided, where feasible.

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

Policy 6B: Multi-family residential land should be developed with a balance of open space, landscaping, and recreational amenities and should be accessible to commercial and recreational areas and public transportation.

Policy 14A: Develop trail systems, open space, and other amenities that benefit the quality of life in the community.

Impact Land Use-2: Mitigation Measures identified in other *General Plan* Elements

Growth Management Policy II.E.1: The (Level of Service) standards in this Element will be used to evaluate the traffic impacts of new developments, and no application shall be approved which may cause a violation of these standards unless either:

- a. Improvements that will mitigate the projected LOS impact are programmed in the City's or Redevelopment Agency's Capital improvement Program; or
- b. A Finding of Special Circumstances has been made for the intersection; or
- c. Improvements will be made by a project sponsor as part of a project.

Growth Management Policy II.E.2: The City shall develop and implement a mitigation program to insure that new development pays its fair share of the cost of maintaining adequate operations on the Basic Routes and the Routes of Regional Significance.

Impact Land Use-2: Additional Mitigation Measures identified in this EIR

None identified.

Impact Land Use-2: Significance After Mitigation

Implementation of the mitigation measures listed above would reduce the impact to a less-than-significant level.

Impact Land Use-3: Development consistent with the Land Use Element Update could result in development in areas not adequately served by the necessary public services, including storm drainage, water and wastewater treatment. This would be a significant impact.

Section IV.F, Public Services and Utilities, discusses the adequacy of public services under buildout of the Land Use Element Update. The Public Services mitigation measures contain policies requiring that adequate services be provided by the developer before development can occur.

Impact Land Use-3: Mitigation Measures Proposed as Part of the Project

Refer to Mitigation Measures Proposed as Part of the Project in Section IV.F, Public Services and Utilities.

Impact Land Use-3: Mitigation Measures identified in other *General Plan* Elements

Growth Management Policy III.F.1: The City shall review all new development plans for conformance with the performance standards in this Element. The City will approve a development application only after making findings that one or more of the following conditions are met:

- a. Assuming participation in adopted mitigation programs, performance standards will be maintained following the project occupancy; or
- b. Because of the characteristics of the development project, project-specific mitigation measures are needed in order to insure maintenance of standards, and such measures will be required of the project sponsor; or
- c. Capital projects in the Capital Improvements Program (or planned by service-providing special districts) will result in maintenance of performance standards.

Growth Management Policy III.F.2: The City will establish and implement a development mitigation program to insure that new growth is paying its share of the cost associated with the maintenance of these standards.

Growth Management Policy III.F.3: The City shall require all new development to contribute to or participate in the improvement of the above-mentioned facilities and systems in proportion to the demand generated by project occupants and users.

Please see also Mitigation Measures identified in other General Plan Element in Section IV.F, Public Services and Utilities.

Impact Land Use-3: Mitigation Measures Identified in this EIR

Refer to Section IV.F, Public Services, for mitigation measures that address adequacy of public utilities.

Impact Land Use-3: Significance After Mitigation

The mitigation measures identified in the Public Services and Utilities Section would reduce the impact to a less-than significant level.

IV. Environmental Setting, Impacts and Mitigation Measures

A. Land Use, Zoning and Plans

REFERENCES - Land Use, Plans and Policies

City of Hercules, *Final Environmental Impact Report, Industrial Park*, November 1982.

City of Hercules (Economic Development Strategy Planning Task Force), *Economic Development Strategy Plan*, May 18, 1990.

City of Hercules, *Economic Development Element, General Plan*, 1991.

Engineering Science, Inc., *Draft Environmental Impact Report on the Hercules Properties, Inc./Gelsar Specific Plan*, prepared for the City of Hercules, March 1989.

Governor's Office of Planning and Research, *California Permit Handbook*, 1991.

B. TRANSPORTATION AND CIRCULATION

INTRODUCTION

This section describes the project setting in terms of access and circulation opportunities, the potential impacts of the proposed project on the transportation and circulation system, and proposed mitigation measures for the identified impacts. The transportation section includes descriptions of existing traffic conditions and future traffic conditions under the updated General Plan. In addition, future traffic conditions under the existing General Plan are provided for comparative purposes.

In November 1988, the voters of Contra Costa County approved Measure "C" (Contra Costa County Transportation Improvement and Growth Management Program). This measure established a 0.5 percent sales tax, and dedicated the tax proceeds to transportation improvements in Contra Costa County (including its cities). These revenues are then returned to participating cities (i.e., return-to-source funds) based on a formula which includes variables such as a jurisdiction's population, and miles of streets and highways within each jurisdiction. Measure "C" is administered by a committee comprised of elected officials from various jurisdictions throughout the County. This organization, the Contra Costa Transportation Authority (CCTA), determined that to facilitate efficient inter-governmental relations, Measure "C" transportation issues should be addressed by committees representing sub-regional areas of the County. For purposes of Measure "C", the western portion of the County is addressed by the West Contra Costa Transportation Advisory Committee (WCCTAC).

Measure "C" requires that jurisdictions participating in the Measure's return-to-source program take several actions, including the following transportation-related actions:

1. Adopt a Growth Management Element for their General Plans;
2. Adopt Traffic Level of Service Standards;
3. Participate in their respective sub-regional committees;
4. Participate in the development of an Action Plan by their respective sub-regional committees to address traffic operations on routes with regional significance;
5. Adopt a Development Mitigation Program;

IV. Environmental Setting, Impacts and Mitigation Measures

B. Transportation and Circulation

6. Develop a five-year Capital Improvement Program to meet and/or maintain Traffic Service and Performance Standards; and
7. Adopt a Transportation Demand Management Ordinance.

In compliance with Measure "C", the City's Growth Management Element, adopted in 1994, establishes policies and traffic level of service and performance standards. The policies, traffic level of service standards and technical procedures documented in the county's model Growth Management Element and the Growth Management Program implementation documents, prepared by the CCTA, provided the framework for the development of the City's Growth Management Element.

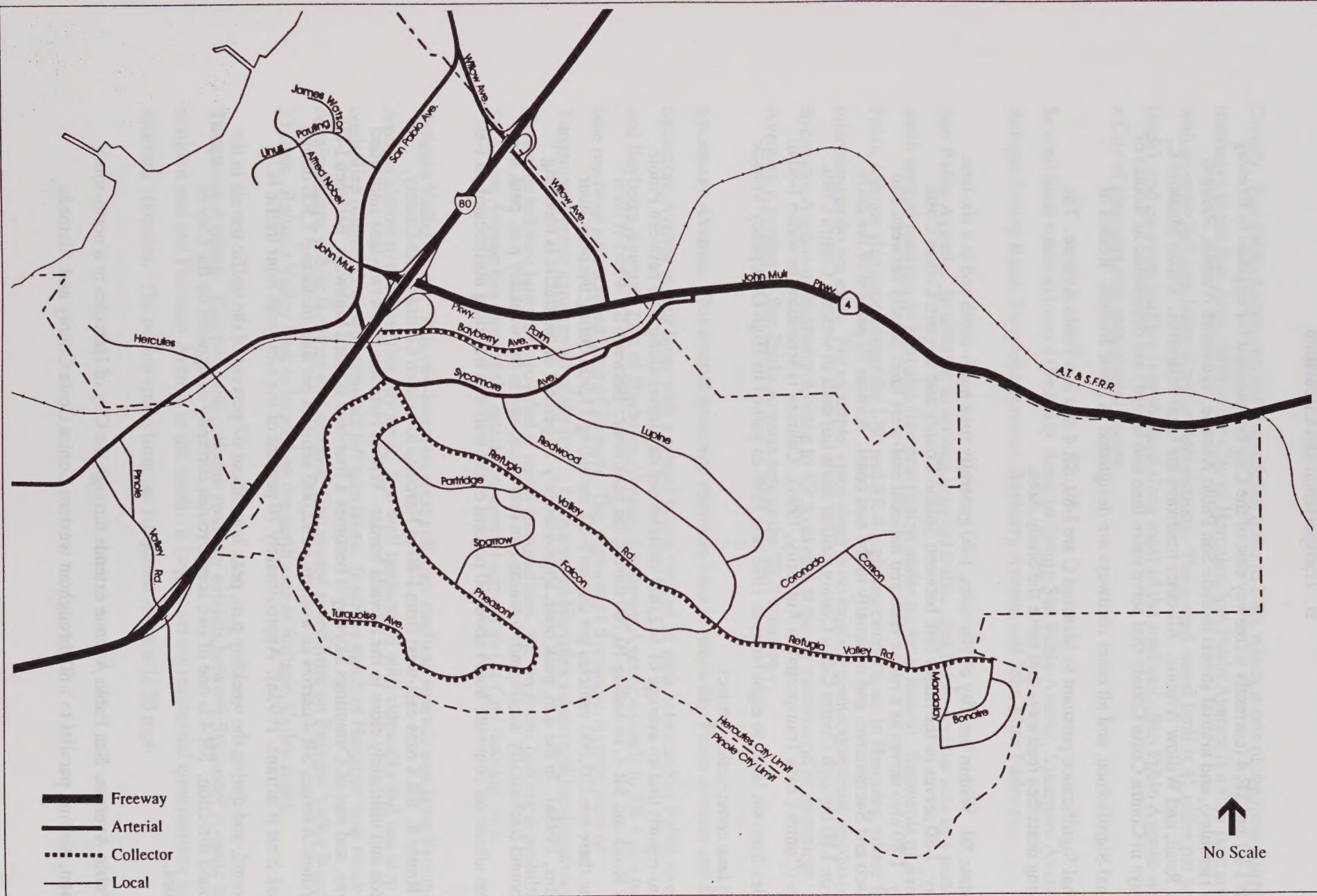
State Proposition 111 requires each urban county in California to prepare a Congestion Management Program (CMP). The CCTA has been designated by the County as the Congestion Management Agency (CMA) for the County. The required components of the CMP are very similar to the components of the Growth Management Program, and the CCTA coordinates implementation of both programs to simplify implementation and to develop a unified set of policies.

Traffic projections used in the transportation analysis were obtained from the West County Travel Demand Model, which was prepared for the CCTA to facilitate coordinated transportation planning. The computer model generates year 2010 daily and peak-hour traffic volume projections for the West Contra Costa County area, including the cities of El Cerrito, Hercules, Pinole, Richmond and San Pablo and the unincorporated County areas. Land uses for the traffic model were derived from the approved General Plans of applicable jurisdictions. Only land use and demographic data for the City of Hercules were modified for the forecast year; all other model data were held constant. (See the Impacts analysis for more discussion of the traffic forecasting methodology.)

SETTING

Roadway Network

The City of Hercules lies on the western edge of Contra Costa County, north of Pinole and south of the unincorporated community of Rodeo. Regional access to the City of Hercules is provided by Interstate 80 (I-80) and State Route (SR) 4 and San Pablo Avenue (see Figure IV.B.1). The City categorizes roadways as freeways, arterial streets, and local collector streets. Freeways



SOURCE: DKS Associates

Hercules General Plan Land Use and Circulation Update / 930314 ■

Figure IV.B.1
Existing Roadway Network

IV. Environmental Setting, Impacts and Mitigation Measures

B. Transportation and Circulation

include I-80 and SR 4 (currently a freeway east of the City but planned for upgrade to freeway within Hercules), and arterial streets include San Pablo Avenue, Sycamore Avenue, Refugio Valley Road, and Willow Avenue. All other roadways are local collectors. Under Measure C, roadways in Contra Costa County that serve more than one locality are designated as Routes of Regional Significance, and all other roadways are designated as Basic Routes. Routes of Regional Significance pursuant to Measure C are I-80, SR 4 and San Pablo Avenue. The following describes roadways that serve the Study Area.

Interstate 80. Within the City of Hercules, I-80 generally runs north-south and is a six-lane freeway. I-80 serves as the major link between Solano County and western Contra Costa County. I-80 also serves as a major state and national east-west link: locally between San Francisco and Sacramento, and nationally to the east coast. Almost 50 percent of the daily traffic on I-80 through Contra Costa County neither starts nor ends in western Contra Costa County (Contra Costa Transportation Authority, 1994). Caltrans is scheduled to widen I-80 in Hercules from six lanes to eight lanes in 1995 and 1996 as part of its High Occupancy Vehicle (HOV) lane construction project.

Caltrans reports that an average of 142,000 vehicles per day travel along I-80 between Pinole Valley Road and SR 4, including 10,700 during the peak hour. Between SR 4 and Willow Avenue there are 105,000 vehicles per day on I-80, including 11,900 during the peak hour (Caltrans, 1993a). In the a.m. peak hour, approximately 70 percent of the traffic is traveling southbound (technically westbound) towards San Francisco, and in the weekday p.m. peak hour (highest afternoon commute hour) about 60 percent of the traffic is traveling northbound on I-80.

State Route 4. SR 4 runs east-west from I-80 in Hercules to eastern Contra Costa County, Stockton and ultimately close to the Nevada border. Within Hercules it is a two-lane undivided highway, and east of Cummings Skyway it becomes a four-lane divided highway. Between I-80 and Willow Avenue, SR 4 carries an average of 32,000 vehicles per day, including 3,500 during the peak hour (Caltrans, 1993a). Approximately 70 percent of the a.m. peak hour traffic is westbound, and during the weekday p.m. peak hour about 67 percent of the traffic travels in the eastbound direction. SR 4 is one of two scenic routes currently designated by the City of Hercules.

San Pablo Avenue. San Pablo Avenue extends through the City of Hercules in a north-south direction, running parallel to I-80 throughout western Contra Costa County and Alameda

IV. Environmental Setting, Impacts and Mitigation Measures

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County. San Pablo Avenue serves as a reliever route to I-80, which is one of the most congested roadways in the Bay Area. Within the City of Hercules, San Pablo Avenue is a four lane arterial, with separate left turn lanes at major intersections. The posted speed limit is 45 miles per hour (mph), and on-street parking is prohibited along most of the roadway. San Pablo Avenue is also a City of Hercules designated scenic route.

Several local roadways serve the Study Area, including San Pablo Avenue, Sycamore Avenue, Refugio Valley Road, Turquoise Avenue, Bayberry Avenue and John Muir Parkway.

San Pablo Avenue. In addition to serving regional traffic, San Pablo Avenue acts as a north-south arterial roadway in Hercules (see description under regional routes). Segments of San Pablo Avenue also supplement the I-80 and SR 4 highway connections in Hercules, where full interchanges do not exist. For example, since there is no existing connection from westbound Sycamore Avenue or Bayberry Avenue to SR 4 (except at the far eastern end of Sycamore Avenue), a portion of San Pablo Avenue acts as the SR 4 connector.

Sycamore Avenue. This arterial generally runs east-west between San Pablo Avenue and SR 4. Sycamore Avenue is four lanes with a posted speed limit of 35 mph between San Pablo Avenue and Bayberry Avenue. East of Bayberry Avenue, Sycamore Avenue extends to SR 4 as a two lane roadway with a speed limit of 25 mph. The segment of Sycamore Avenue west of Turquoise Avenue captures all of the traffic from eastern Hercules via several local roadways. Exclusive left turn lanes are provided at major intersections, and on-street parking is prohibited. Sycamore Avenue has most of the retail/commercial activity in the City fronting on it.

Refugio Valley Road. This two-lane east-west collector roadway extends east from Sycamore Avenue almost to the Hercules city limit. It is well landscaped with sidewalks and has stop sign controlled intersections with separate left turn lanes. It serves much of Hercules' new residential developments, public facilities and schools. The posted speed limit on Refugio Valley Road is 35 mph. Refugio Valley Park is located on the north side of Refugio Valley Road.

Turquoise Avenue. This two-lane collector roadway extends between Sycamore Avenue at its northern end and Pheasant Avenue to the south. It largely serves residential communities in southern Hercules. The posted speed limit on Turquoise Avenue is 30 mph.

Bayberry Avenue. Bayberry Avenue is a two-lane collector roadway primarily serving I-80 eastbound off-ramp traffic destined for Hercules. Bayberry runs east-west and currently extends between Sycamore Avenue and Palm Avenue. Vehicles exiting I-80 eastbound are prohibited from making left turns onto eastbound Bayberry Avenue, and thus travel westbound to the Sycamore Avenue intersection. On-street parking is prohibited along the entire length of Bayberry Avenue.

John Muir Parkway. John Muir Parkway is a four-lane extension of the SR 4 terminus, located west of San Pablo Avenue. John Muir Parkway serves as a local roadway between the North Shore Business Park and San Pablo Avenue. East of San Pablo Avenue, access is provided to I-80 eastbound and westbound, and to SR 4 eastbound. SR 4 is also called John Muir Parkway from Hercules to Martinez.

Intersection Capacity Analysis

To help evaluate current traffic conditions, five signalized intersections and four unsignalized intersections in Hercules were analyzed during the weekday a.m. and p.m. peak hours (see Figure IV.B.2):

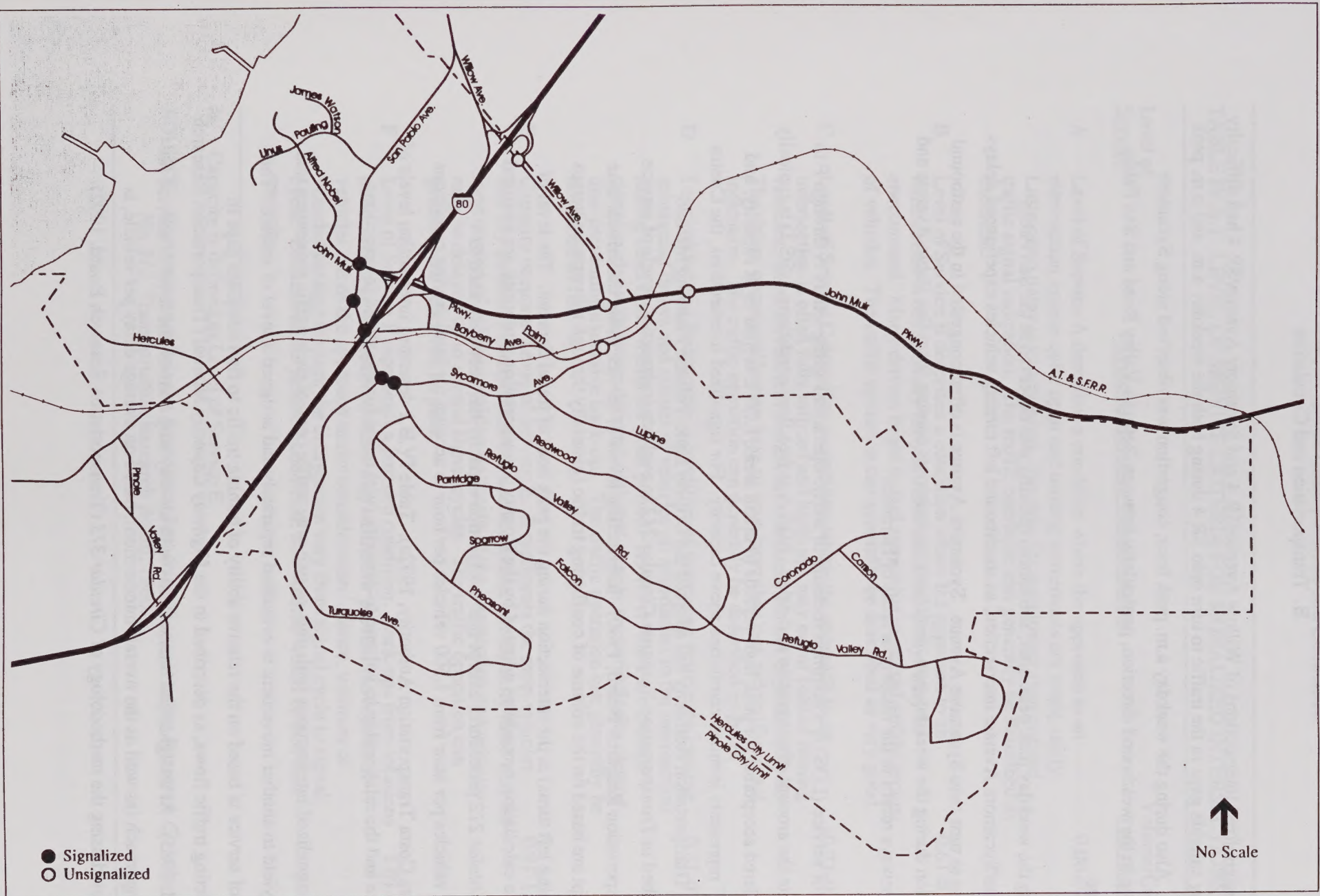
Signalized:

- San Pablo Avenue/John Muir Parkway
- San Pablo Avenue/Sycamore Avenue
- Bayberry Avenue/Sycamore Avenue
- Turquoise Avenue/Sycamore Avenue
- Refugio Valley Road/Sycamore Avenue

Unsignalized:

- Sycamore Avenue/Palm Avenue
- Sycamore Avenue/State Route 4
- Willow Avenue/State Route 4
- I-80 Eastbound Ramps/Willow Avenue

Substantial queuing was observed during the weekday a.m. peak hour at several locations. At the intersection of San Pablo Avenue and Sycamore Avenue, westbound vehicles were backed up to the Bayberry Avenue intersection. These vehicles were largely headed from residential areas in eastern Hercules to I-80 and SR 4 via San Pablo Avenue. At the intersection of San Pablo Avenue and John Muir Parkway, northbound vehicles also experienced long queues. These were mostly motorists traveling along San Pablo Avenue on their way to I-80 or SR 4. Motorists at



SOURCE: DKS Associates

Hercules General Plan Land Use and Circulation Update / 930314 ■

Figure IV.B.2
Existing Study Intersections
Traffic Control

IV. Environmental Setting, Impacts and Mitigation Measures

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the unsignalized intersections of Willow Avenue/SR 4 and Sycamore Avenue/SR 4 had difficulty finding suitable gaps in the traffic to turn onto SR 4 during both the weekday a.m. and p.m. peak hours. Also during the weekday a.m. peak hour, congestion was observed along Sycamore Avenue in the westbound direction, particularly between Refugio Valley Road and San Pablo Avenue.

During the weekday p.m. peak hour, substantial queuing was observed at the San Pablo Avenue/Sycamore Avenue intersection, as southbound left turning vehicles experienced delays waiting to turn onto Sycamore Avenue. Sycamore Avenue is often congested in the eastbound direction during the weekday p.m. peak hour, as motorists coming from San Pablo Avenue and the freeways return to the residential areas of Hercules.

Level of service (LOS) is a common measure of traffic operations using letters A through F to indicate the amount of congestion and delay. LOS A is free flow conditions, LOS D is typically considered acceptable for peak hour periods in urban areas, LOS E is near or at capacity, and LOS F represents jammed conditions above capacity. For signalized intersections, the Contra Costa Transportation Authority has adopted the Critical Lane Volume Planning Method described in *Transportation Research Circular 212* to evaluate intersection levels of service (Transportation Research Board, 1980). Intersection levels of service using the critical lane concept are based on the volume of conflicting traffic (generally through movements versus opposing left turns) at the intersection during the peak hour of travel demand. The level of service calculation procedures adopted by the County Transportation Authority are identical to the *Circular 212* procedures except that intersection capacity has been increased to 1,800 vehicles per hour from 1,500 vehicles per hour to account for local driving conditions (Contra Costa Transportation Authority, 1992a). Table IV.B.1 describes intersection levels of service and the relationship to volume-to-capacity (v/c) ratios for signalized intersections.

At unsignalized intersections with one- or two-way traffic control each traffic movement that must yield to another movement is evaluated separately and assigned a level of service. The level of service is based on the relative ability of turning traffic to find adequate gaps in conflicting traffic flows, as described in the *Highway Capacity Manual* (Transportation Research Board, 1985). At unsignalized intersections with all-way stop control, the level of service for each approach (as well as the overall intersection), based on average delay per vehicle, is evaluated using the methodology of *Circular 373* (Transportation Research Board, 1992).

TABLE IV.B.1: LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service	Typical Operating Characteristics	Volume/Capacity (v/c) Ratio/a/
A	Level of Service A describes a condition where the approach to an intersection appear quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.	0.00-0.60
B	Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can generally be described as very good.	0.61-0.70
C	Level of Service C describes a condition where the approach to an intersection is often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.	0.71-0.80
D	Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operation can generally be described as fair.	0.81-0.90
E	Capacity occurs at Level of Service E. It represents the most vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting upstream of the intersection and vehicles may be delayed up to several signal cycles. The traffic operation can generally be described as poor.	0.91-1.00
F	Level of Service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.	1.01+

/a/ Capacity is defined as Level of Service E.

SOURCE: Environmental Science Associates, Inc. from *Transportation Research Circular No. 212*, Transportation Research Board, 1980.

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B. Transportation and Circulation

Table IV.B.2 describes intersection levels of service criteria for unsignalized intersections with four-way stop control, and Table IV.B.3 describes intersection levels of service criteria for unsignalized intersections with minor street stop control. Table IV.B.4 summarizes the intersection capacity analysis for the existing weekday a.m. and p.m. peak hour conditions.

TABLE IV.B.2: LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS WITH STOP-SIGN CONTROL ON ALL APPROACHES

<u>Average Stopped Delay in Seconds per Vehicle</u>	<u>Level-of-service</u>
< 5	A
5 to 10	B
10 to 20	C
20 to 30	D
30 to 45	E
> 45	F

SOURCE: Transportation Research Board, *Transportation Research Circular 373, Interim Materials on Unsignalized Intersection Capacity*, 1991.

In the City of Hercules, the acceptable level of service for traffic operating conditions during peak hours at signalized intersections on Measure C-defined Basic Routes is specified in the recently adopted Growth Management Element. Level of service standards are presented under Significance Criteria on p. IV.B-16 of this report.

Currently, each of the five signalized intersections analyzed operates at an acceptable level of service during the weekday a.m. and p.m. peak hours. Three of the four unsignalized intersections analyzed (all but Sycamore Avenue/Palm Avenue) experiences traffic delays for left turn movements during the weekday a.m. and p.m. peak hours. This is not unusual for stop-controlled intersections with only a small percentage of traffic on the minor street approach. At both the Sycamore Avenue/SR 4 and Willow Avenue/SR 4 intersections, vehicles experience delays during the morning and afternoon commute periods when turning onto and off the freeway. Programmed improvements to SR 4 will eliminate the stop sign controlled intersections by creating grade separated interchanges. (See description of the SR 4 project under Committed Roadway Network Changes, below).

TABLE IV.B.3: LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS
WITH CONTROL ON MINOR STREET ONLY

<u>Level of Service</u>	<u>Typical Operating Characteristics</u>
A	Level of Service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. The traffic operation can generally be described as excellent.
B	Level of Service B describes a condition where one or more critical movement approach to an intersection is occasionally fully used and short delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can generally be described as very good.
C	Level of Service C describes a condition where one or more critical movement approach to an intersection is often fully used and queuing may occur. The traffic operation can generally be described as good with average traffic delays.
D	Level of Service D describes a condition of increasing restriction and fewer gaps in the major street traffic flow, causing substantial delays and queues of vehicles on critical movement approaches to the intersection during short times within the peak period. The expected delay for minor street traffic is long; however, traffic operation can generally be described as fair.
E	Level of Service E describes the condition at which capacity of particular critical movement(s) is reached. It represents the most vehicles that any particular critical movement can accommodate; however, overall intersection operation may continue to operate at acceptable levels of service. At capacity there may be long queues of vehicles waiting up-stream of the critical movement. These vehicles may experience very long delays and potentially interfere with major street traffic flows. The traffic operation can generally be described as poor.
F	Level of Service F represents a jammed condition. Insufficient gaps restrict the movement of vehicles out of one or more critical movement to the intersection. Extremely long delays occur, and drivers may select smaller-than-usual gaps, potentially affecting other traffic movements at the intersection. In such cases, safety may be a problem. This condition usually warrants improvement to the intersection.

SOURCE: Environmental Science Associates, Inc. from *Highway Capacity Manual*, Special Report 209, Transportation Research Board, 1985.

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TABLE IV.B.4: INTERSECTION LEVEL OF SERVICE - EXISTING CONDITIONS

<u>Signalized Locations</u>	<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
	<u>V/C</u> ¹	<u>LOS</u> ²	<u>V/C</u>	<u>LOS</u>
Bayberry/Sycamore	0.52	A	0.43	A
San Pablo/Sycamore	0.54	A	0.48	A
San Pablo/John Muir Parkway	0.66	B	0.82	D
Turquoise/Sycamore	0.41	A	0.44	A
Refugio Valley/Sycamore	0.30	A	0.38	A
<u>Unsignalized Locations</u> <i>One- and Two-Way Stop</i> ³	<u>Minor St.</u> <u>LOS</u>	<u>Major St.</u> <u>LOS</u>	<u>Minor St.</u> <u>LOS</u>	<u>Major St.</u> <u>LOS</u>
Sycamore/Palm	A	A	A	A
Sycamore/State Route 4	E	D	F	F
Willow/State Route 4	F	C	F	E
<u>All-Way Stop</u>	<u>Delay</u> ⁴	<u>LOS</u>	<u>Delay</u>	<u>LOS</u>
I-80 Eastbound Ramps/Willow	7	B	36	E

¹Volume-To-Capacity Ratio

²Level of Service

³Worst movement is presented for both the minor and major street approaches

⁴Delay in seconds per vehicle

SOURCE: DKS Associates.

At the I-80 eastbound ramps/Willow Avenue intersection, the four-way stop sign control causes minor delays during the weekday p.m. peak hour. A traffic signal is currently under construction at this location.

Freeway Operations

I-80 currently operates at Level of Service E/F in the peak directions in both the a.m. and p.m. peak hours in the Hercules area. In the morning peak period, particular areas of westbound congestion occur from Willow Avenue in Hercules to the Alameda County line, and are most

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prominent at freeway on-ramps. In the evening commute period, eastbound congestion occurs from the Bay Bridge to Willow Avenue, and frequently extends beyond Willow Avenue to the Carquinez Bridge (Contra Costa Transportation Authority, 1994).

SR 4 in the Hercules area also operates at Level of Service E/F in the peak periods. Some drivers traveling on SR 4 choose to divert to Cummings Skyway. On the two-lane, undivided section of SR 4 through and near Hercules, drivers attempting to enter SR 4 from side streets at unsignalized intersections find it difficult to gain access to the highway. The undivided roadway has also resulted in a relatively high number of accidents (Contra Costa Transportation Authority, 1994).

Public Transportation and Park & Ride Lots

Bus service in Hercules is currently provided by AC Transit and the Western Contra Costa County Transit Authority (WestCAT), as well as BART Express Bus (see Figure IV.B.3). AC Transit Route 74 runs along San Pablo Avenue between Crockett and the Richmond BART station. It operates weekdays on one-hour headways, with a stop located at the WestCAT Transit Transfer Station on John Muir Parkway just west of San Pablo Avenue. AC Transit Line 30Z travels along SR 4 from Martinez to Hercules, stopping at the WestCAT Transfer Terminal, and continuing on to the Richmond BART station. Line 30Z operates weekdays on one-hour headways.

WestCAT bus service is available throughout Hercules. Four lines operate on weekdays, and each line travels between the WestCAT Transfer Terminal and Sycamore Avenue. Line 10 runs along Turquoise Avenue, Pheasant and Sparrow. Line 12 travels along Sycamore Avenue, Redwood, Violet and Lupine. Line 13 covers Refugio Valley Road as well as Carson, Grissom and Coronado. Line 14 runs along Pheasant, Sparrow, Falcon and Refugio Valley Road west of Redwood. Each line operates on half-hour headways between 6:00 a.m. and 8:00 p.m.

WestCAT also provides door-to-door Dial-A-Ride service for senior and disabled passengers in portions of Hercules and Rodeo not otherwise served by WestCAT. In Hercules, the Dial-A-Ride service area extends east of San Pablo Avenue and north of SR 4.

BART Express Bus Line J connects several points in northern and western Hercules with the El Cerrito Del Norte BART station. In Hercules, passengers can access the express bus at the

Figure IV.B.3
Existing Public Transportation
and Park and Ride Lots

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North Shore Business Park and the Willow Avenue/I-80 Park & Ride lots. BART Express Line J operates on 30-minute headways during the week, and 40-minute headways on Saturdays and Sundays.

Park & Ride lots currently exist at the I-80/Willow Avenue ramps intersections. Approximately 100 spaces are available for commuters in these lots. Connecting service to BART Express Bus Line J is available at these lots. Another Park & Ride lot, scheduled to open in late 1994, will be located on the east side of San Pablo Avenue between Sycamore Avenue and SR 4. The San Pablo Avenue Park & Ride lot will contain about 200 spaces and will also provide parking for commuters using AC Transit Line 74 and BART Express Bus Line J.

Transportation Demand Management

The City of Hercules has adopted the Transportation Demand Management (TDM) Program developed by the West Contra Costa County Transportation Advisory Committee (WCCTAC), which includes guidelines for trip reduction measures. The ordinance generally requires that employers and business complexes with 100 or more employees (except retail establishments, contractors and certain government agencies) adopt a TDM program with a goal of achieving average vehicle ridership of 1.3 employees per vehicle by 1997. Employers covered by the ordinance must also designate a TDM coordinator to administer the TDM program (City of Hercules, 1992). (Trip generation estimates contained in this report do not consider potential reductions that could be achieved through transportation demand management.)

Bicycle and Pedestrian Facilities

The only designated bicycle route in Hercules is along the western curb of San Pablo Avenue. Pedestrian facilities include sidewalks and hiking trails. A trail currently exists along Refugio Creek (Refugio Valley Road) east of I-80, and is used extensively by bicyclists and pedestrians. A trail is proposed for the Refugio Creek right-of-way west of I-80. The City has adopted a trail alignment that runs along the shoreline through the proposed Waterfront Park south of Santa Fe Avenue, runs generally eastward along the Refugio Creek Corridor, and then runs generally northeast along San Pablo Avenue to the northern city limit, as shown in the *General Plan* Open Space Element. The East Bay Regional Park District has proposed a trail along the entire bay front of Hercules. Please see Section IV.A., Land Use, Plans and Policies, for further description of this planning process.

Other Transportation Facilities

Hercules is traversed by two railroad lines; the Southern Pacific and the Santa Fe (see Figure IV.B.1). There is no existing water or air transportation service to the City of Hercules. The deep water channel is several miles from the City's shoreline. Two major international airports, Metropolitan Oakland International Airport and San Francisco International Airport, are located in the San Francisco Bay Area and are accessed via highway connections from Hercules.

IMPACTS AND MITIGATION MEASURES

Significance Criteria

The following Level of Service standards are used to determine whether the proposed Land Use and Circulation Elements Update would have a significant effect on the environment. For signalized intersections on Measure C-designated Basic Routes, those standards, as defined in the Hercules *General Plan* Growth Management Element, are:

LOS "High" D to "Low" E (maximum v/c ratio is 0.94)

- Sycamore Avenue (from Bayberry to San Pablo Avenue)
- Bayberry Avenue (from I-80 ramps to Sycamore)

LOS "High" D (maximum v/c ratio is 0.89)

- Sycamore Avenue (SR-4 - Bayberry)
- Refugio Valley Road (Sycamore - Redwood/Falcon)
- Alfred Nobel Drive
- Linus Pauling Drive
- James Watson Drive
- John Muir Parkway

LOS "Low" D (maximum v/c ratio is 0.84)

- All other Basic Routes (that is, except Routes of Regional Significance).

Special conditions apply for the intersection of Bayberry and Sycamore Avenues. If a project would result in LOS worse than "High" D (*i.e.*, "Low" E), the project must be approved by the City Council upon a finding that the project would provide substantial benefit to the City or the community through the creation of substantial jobs, creation of a substantial long-term revenue potential to support City services, or the provision of a substantial amount of affordable housing.

IV. Environmental Setting, Impacts and Mitigation Measures

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For unsignalized intersections on Basic Routes, in the absence of formally adopted standards this report uses LOS D (maximum v/c ratio of 0.90) as the minimum acceptable LOS. LOS D is the target service level most frequently adopted by jurisdictions in urban areas.

The Growth Management Element states that traffic objectives and standards for San Pablo Avenue (a "Route of Regional Significance") are to be included upon publication by the Contra Costa Transportation Authority (CCTA). (Traffic service objectives for Routes of Regional Significance in the Hercules area are set cooperatively by jurisdictions in western Contra Costa County.) The Circulation Draft of the *West County Action Plan* was published on July 29, 1994, and recommends a traffic service objective of LOS E at signalized intersections on San Pablo Avenue.

For its 1991 Congestion Management Program, the CCTA established level of service standards of LOS F for eastbound I-80 and LOS E/F for westbound I-80 (east of SR 4/west of SR 4). The Circulation Draft of the *West County Action Plan* contains no level of service standard in its traffic service objectives for the year 2010. The draft *West County Action Plan* established a traffic service objective for SR 4 of LOS E in 2010.

Approach

Future circulation deficiencies in Hercules were evaluated by considering:

- Proposed changes to land use in the City of Hercules through buildout;¹
- Growth in the remainder of Contra Costa County and the Bay Area through the year 2010, based on estimates prepared by the Association of Bay Area Governments (ABAG) in *Projections '90*; and
- Transportation improvements contained in various adopted planning documents (TJKM, 1993; City of Hercules, 1986; City of Hercules, 1993a).

Travel demand on the transportation network was estimated using the West County Travel Demand Model (Contra Costa Transportation Authority, 1993; Contra Costa Transportation Authority, 1992b). The West County Travel Demand Model considers four key circulation components in order to estimate travel demand; trip generation, trip distribution, mode choice, and trip assignment.

¹ In addition to growth that would occur pursuant to the updated Land Use Element, the analysis for 2010 includes development of approximately 800 residential units and a hotel in the Franklin Canyon area.

Trip Generation. Trip generation at buildout under the proposed land use designations at typical density was calculated using the trip generation equations embedded in the West County Model. The model estimates the amount of different types of travel expected to come from different land uses on a daily basis. Trip types are:

- Home-based work
- Home-based shop/other
- Home-based social/recreation
- Home-based school
- Home-based Diablo Valley College
- Non-home-based

Within Contra Costa County the trip generation model consists of:

- A submodel to estimate households by income group and household size;
- A set of equations to estimate trip productions (i.e. the "home" end of a trip) using household size and income; and
- A set of equations to estimate trip attractions, using total employment, retail employment, service employment, other employment, households, population, and university student enrollment.

After trip distribution and mode choice procedures are applied (see explanation below), peaking factors are applied to obtain trip patterns for a.m. and p.m. peak hours. Table IV.B.5 summarizes the trip generation estimates for the project.²

Trip Distribution. A gravity model was used to estimate the interaction of travel between different traffic analysis zones. The gravity model assumes that the amount of travel from one zone to all other zones is proportional to the number of trip attractions in each of the other zones, and inversely proportional to the travel impedance between each pair of zones. Impedances are measured using congested travel speeds for work trips. For non-work trips, free flow speeds are used. The travel impedances have a different effect on the average trip lengths for the different trip purposes.

² A more detailed presentation of estimated trip generation is provided in the Transportation Technical Report for the Circulation Element Update, which is on file at the Community and Business Development Department, 111 Civic Drive, Hercules.

TABLE IV.B.5: SUMMARY OF PROJECT TRIP GENERATION

<u>Land Use Category</u>	<u>Size</u>	<u>Average Daily Trips</u>	<u>A.M. Peak Hour Trips</u>	<u>P.M. Peak Hour Trips</u>
Retail/Commercial	2,006,000 sq. ft.	121,100	2,775	11,260
Office/R&D/Light Industry ^a	2,757,000 sq. ft.	20,900	2,860	2,380
Residential	3,816 units	<u>24,800</u>	<u>2,160</u>	<u>2,485</u>
Total		166,800	7,795	16,125

^a See discussion on p. 27 regarding 18.5 acres (242,000 sq. ft. Planned Office/R&D) on Parcel 3 not included in traffic analysis.

SOURCE: DKS Associates

Mode Choice. The mode choice models within Contra Costa County are consistent with the Metropolitan Transportation Commission regional models. For home-based-work trip purposes, there are four possible modes:

- Transit
- Drive-alone-auto
- Two-person auto
- Three-plus-person auto

For other trip purposes, only auto and transit trips are determined. An auto occupancy factor is used to convert auto person trips to auto vehicle trips that can be assigned onto the network.

Outside of Contra Costa County, fixed external mode probabilities are used as a basis for mode choice. The model allows for the percentage of transit trips to shift based on changes in the Contra Costa County transit network, such as BART extensions.

Trip Assignment. Before auto and transit trips can be assigned to the network, they are converted from 24-hour person-trip tables in production-attraction format to weekday a.m. peak hour, weekday p.m. peak hour, and off-peak period trip tables in origin-destination format.

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Assignments are performed taking into account effects of roadway capacity and congestion on travel speeds such that, over a series of iterations, differences in travel speed from one model run to the next are insignificant, at which time *equilibrium* is said to be achieved.

For this study, the year 2010 land use database and demographic information for the City of Hercules were refined to reflect changes proposed in the Land Use Element Update, as defined in Chapter III, Project Description; the database for the other areas in the West County Model was not changed. Currently, vehicle trips generated by land uses within the City of Hercules generate approximately 100,000 trips per day. Changes in land use with the proposed Land Use Element Update by 2010 would collectively add about 3,800 households, 15,300 jobs, and 5.0 million square feet of commercial, office and light industrial space. The daily trip generation resulting from these projects would add up to approximately 166,800 trips, including 7,790 during the weekday a.m. peak hour and 16,125 during the weekday p.m. peak hour, as shown in Table IV.B.5.

Committed Roadway Network Changes

There are several transportation improvements included in the City's *Capital Improvement Program* (CIP) and the *Highway 4 West and San Pablo Avenue Circulation Improvement Plan* (City of Hercules, 1993; City of Hercules, 1990). These roadway network changes anticipated to occur by buildout were incorporated into the analysis of future conditions (see Table IV.B.6 and Figure IV.B.4). Local connections to development that would occur under the Land Use Element Update also were incorporated into the model, based on assumptions developed in conjunction with City staff and information contained in adopted planning documents.

The list of roadway projects used in this analysis was developed in consultation with City staff, based on the CIP list of unfunded, partially funded and funded improvements, and the list of projects that will be built as recommended in the *Circulation Improvement Plan*. Not all projects listed in these documents are included in the list shown on Table IV.B.6, as funding is uncertain or unforeseen at this time.

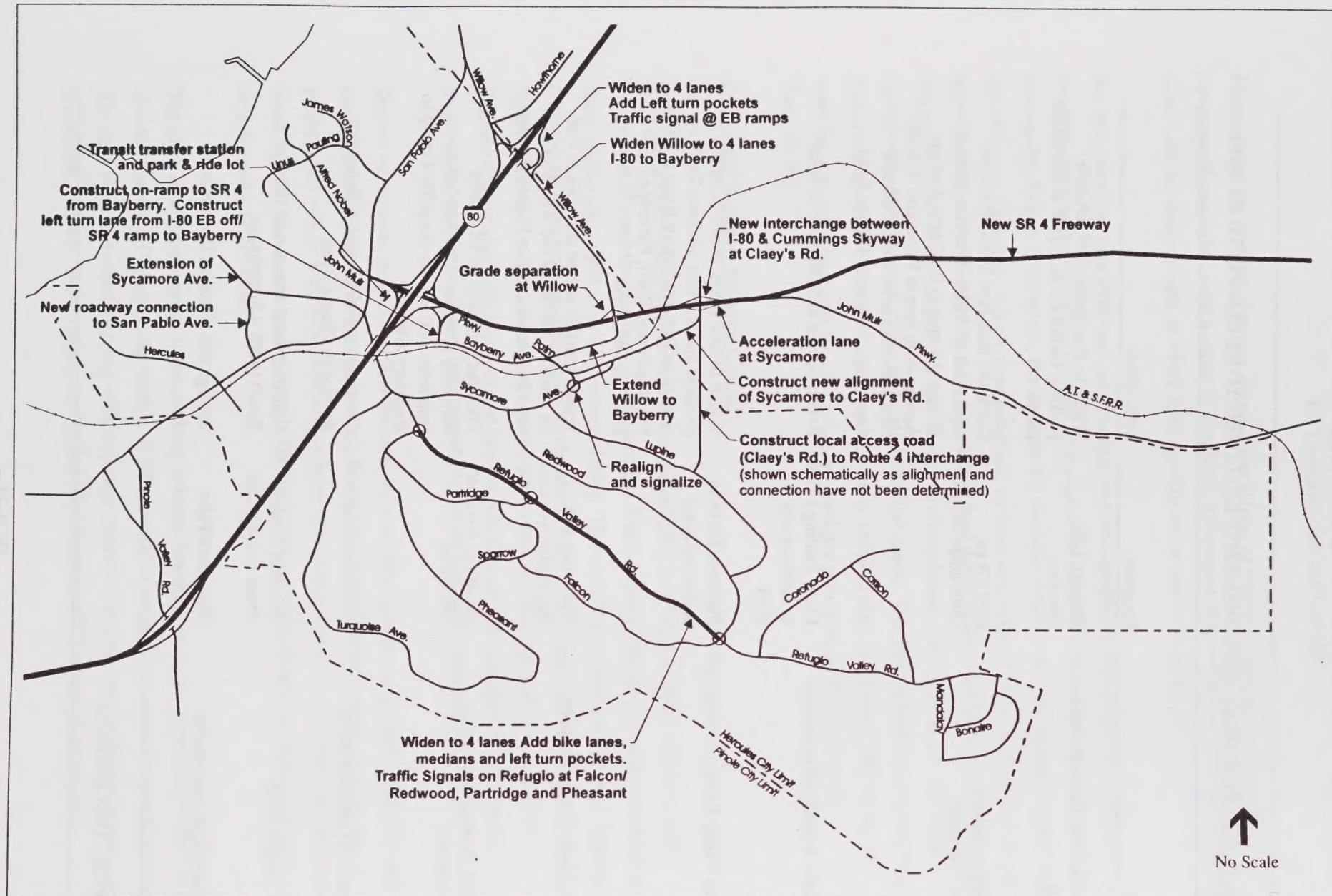
The most significant change to the roadway network for Hercules is the upgrading of SR 4 to a divided freeway. Currently, the section of SR 4 through Hercules (between I-80 and Cummings Skyway) is an undivided highway with stop sign controlled intersections at Willow Avenue and Sycamore Avenue. In the future, the divided SR 4 freeway will have grade separated

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TABLE IV.B.6: ROADWAY IMPROVEMENTS EXPECTED TO BE COMPLETE BY 2010

Project	Location	Description
Willow Avenue Improvements - Phase II	Beneath I-80 Overpass	Widen to four lanes; Add left-turn pockets; Install traffic signal at eastbound ramps
SR 4 improvements - Willow/Sycamore	I-80 EB to Cummings Skyway	Construct four-lane freeway; Grade separation at Willow Avenue; Extend Willow Avenue to Bayberry Avenue; Acceleration lane at Sycamore Avenue; New interchange between I-80 and Cummings Skyway at Claeks Road
San Pablo Avenue improvements	Linus Pauling Drive to northern city limit	Rehabilitation and add bicycle lanes
Refugio Valley Road reconstruction	Pheasant Drive to Redwood Road	Widen to four lanes; Add bike lanes, medians and left turn pockets; Traffic signals on Refugio Valley Road at Falcon Way/Redwood Road, Partridge Drive and Pheasant Drive
Transit Improvement Program	Sycamore and San Pablo Avenues	Transit transfer station and park & ride lot - half of Parcel 10 site with access from Sycamore and San Pablo Avenues
Bayberry Avenue/SR 4 ramp improvements	Bayberry Avenue/ SR 4/I-80	Construct on-ramp to SR 4 from Bayberry Avenue; Construct left turn lane from I-80 EB off-ramp/SR 4 ramp to Bayberry Avenue
Sycamore Avenue extension	to Claeks Road	Construct new alignment of Sycamore Avenue to Claeks Road
Local Access Road	South of Claeks Road interchange	Construct local access road (Claeks Road) to SR 4 interchange
Sycamore/Palm intersection	Sycamore/Palm Avenues	Realign and signalize intersection

SOURCE: DKS Associates



SOURCE: DKS Associates

Hercules General Plan Land Use and Circulation Update / 930314 ■

Figure IV.B.4Year 2010 Committed
Roadway Improvements

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interchanges at Willow Avenue and Claeys Road. East of Claeys Road, SR 4 will probably be realigned as a new freeway, connecting with the current freeway section at Cummings Skyway. The existing SR 4 near Franklin Canyon Golf Course will remain for local access (Caltrans, 1993b; CCS Planning and Engineering, 1993).

At the Bayberry Avenue/I-80 eastbound off-ramp junction, access will be provided in the future to SR 4 eastbound. Motorists coming off I-80 eastbound will be permitted to turn either east or west onto Bayberry Avenue with the addition of a left turn lane from the off-ramp to Bayberry Avenue.

Sycamore Avenue will be extended east to a new local roadway (Claeys Road), and the stop sign controlled intersection that currently exists at SR 4 will be removed as part of the SR 4 highway project.

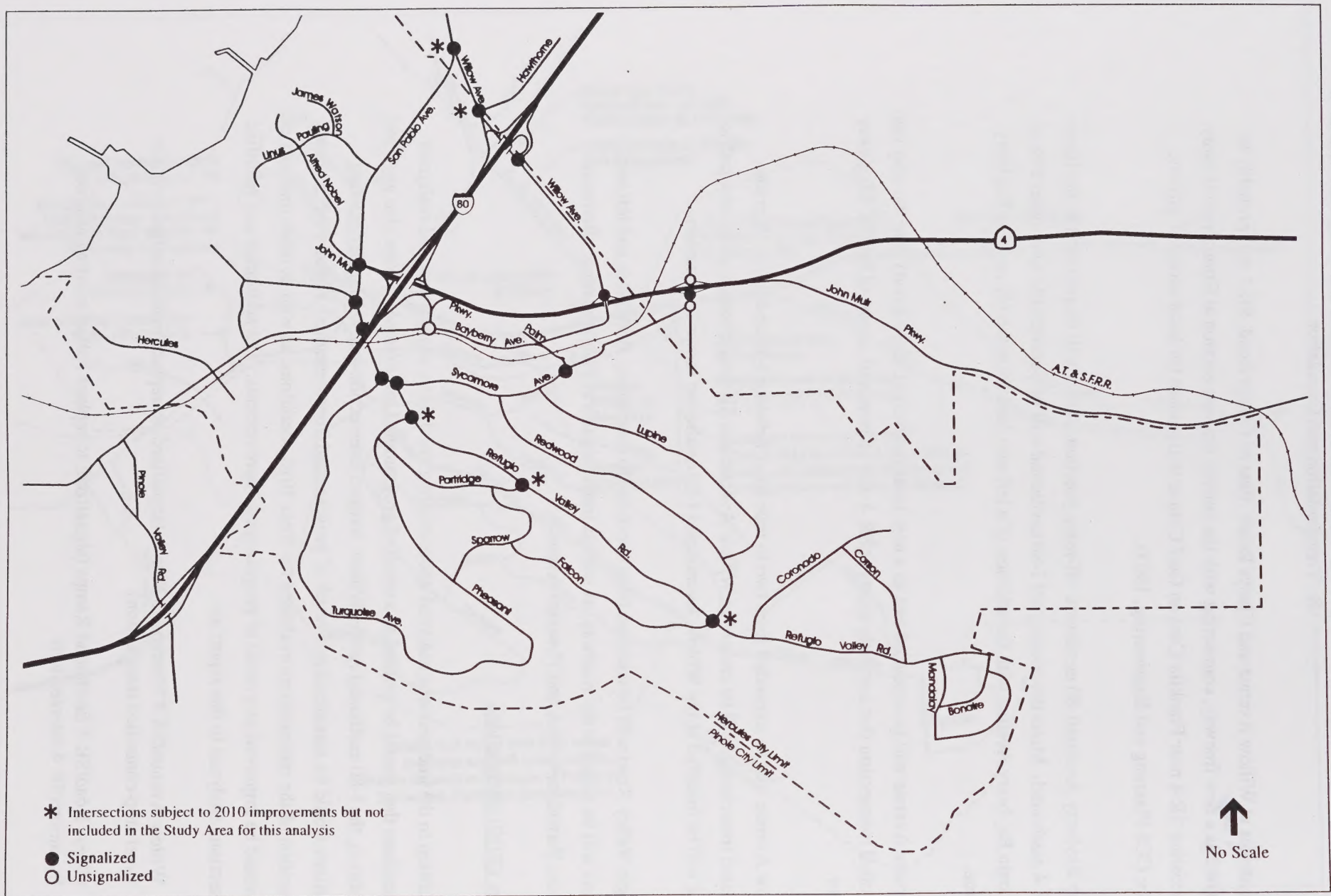
Willow Avenue will be expanded from two to four lanes between I-80 and SR 4. A grade separated interchange will be created at Willow Avenue and SR 4 westbound, and a new traffic signal will be installed at the Willow Avenue and I-80 eastbound ramps intersection.

Refugio Valley Road will be widened from two lanes to four lanes. Bike lanes and left turn pockets will be added to the roadway, as well as traffic signals at Falcon Avenue, Redwood Avenue, Partridge Avenue and Pheasant Avenue.

Future (2010) Intersections

In addition to the intersections analyzed under existing conditions, several new and realigned intersections that would be created as a result of programmed improvements were also analyzed. In addition, the I-80 eastbound ramps/Willow Avenue intersection analyzed under existing conditions would be signalized as a result of programmed improvements. Figure IV.B.5 shows the location of the intersections evaluated for Year 2010 conditions, as well as other intersections that would be improved as a result of programmed improvements. The additional and modified intersections analyzed in this report are:

- Willow Avenue/SR 4 Westbound Ramps (signalized; to replace existing at-grade minor street stop-controlled intersection)
- Claeys Road/SR 4 Eastbound Ramps (signalized; to replace half of existing at-grade Sycamore/SR 4 intersection)



SOURCE: DKS Associates

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Figure IV.B.5
Year 2010 Study Area
Intersections and Traffic Control

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- Claeys Road/SR 4 Westbound Ramps (unsignalized; to replace half of existing at-grade Sycamore/SR 4 intersection)
- Claeys Road/Sycamore Avenue (unsignalized; new intersection)
- Sycamore Avenue/Palm Avenue (signalized; new alignment to replace existing intersection)
- Eastbound I-80 Off-Ramp/Eastbound SR 4 On-Ramp/Bayberry Avenue (unsignalized; reconfigured to allow access to SR 4 eastbound)
- I-80 Eastbound Ramps/Willow Avenue (signalized in future)

Because SR 4 will be a divided highway in the future, the at-grade intersections with Willow Avenue and Sycamore Avenue will be eliminated, as is noted above. The Willow Avenue intersection with SR 4 will be replaced with a grade separated interchange on the north side of SR 4, allowing access to and from SR 4 westbound. (Motorists traveling from Willow Avenue to eastbound SR 4 will have to use ramps at Claeys Avenue.) The Sycamore Avenue intersection with SR 4 will be removed entirely, and Sycamore Avenue will be extended east to a new local roadway (Claeys Road), near its grade separated interchange with SR 4 eastbound and westbound.

Impact Transportation-1: Traffic generated by development consistent with the proposed Land Use and Circulation Elements Update would contribute to unacceptable levels of service at the San Pablo Avenue/John Muir Parkway and San Pablo Avenue/Sycamore Avenue intersections in the a.m. and p.m. peak hours. This would be a significant impact.

Table IV.B.7 shows the intersection level of service summary for Year 2010. The intersection capacities assumed for 2010 reflect the roadway improvements described previously under Committed Roadway Network Changes and shown in Table IV.B.6 and Figure IV.B.4. The 2010 traffic conditions include background traffic growth projected by the West County Travel Demand Model, as well as traffic that would be generated by new development that would occur pursuant to the Land Use and Circulation Elements Update. With background traffic growth and traffic generated by the proposed project, both the San Pablo Avenue/John Muir Parkway and San Pablo Avenue/Sycamore Avenue intersections would operate at LOS F during both the weekday a.m. and p.m. peak hours. Without project-generated traffic, the 2010 V/C ratio at the San Pablo Avenue/John Muir Parkway intersection would be 1.53 (LOS F) in the a.m. peak hour and 1.74 (LOS F) in the p.m. peak hour; project-generated traffic would raise the V/C ratios to 1.82 (LOS F) and 2.49 (LOS F). At San Pablo Avenue/Sycamore Avenue, the V/C ratios without project traffic would be 1.11 (LOS F) in the a.m. peak hour and 0.98 (LOS E) in the

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TABLE IV.B.7: INTERSECTION LEVEL OF SERVICE SUMMARY - YEAR 2010

Signalized Locations	AM Peak Hour		PM Peak Hour	
	<u>V/C</u> ¹	<u>LOS</u> ²	<u>V/C</u>	<u>LOS</u>
Bayberry/Sycamore	0.82	D	0.70	B
San Pablo/Sycamore	1.35	F	1.37	F
San Pablo/John Muir Parkway	1.82	F	2.49	F
Turquoise/Sycamore	0.58	A	0.50	A
Refugio Valley/Sycamore	0.57	A	0.50	A
I-80 Eastbound Ramps/Willow	0.31	A	0.61	B
Willow/SR 4 WB Ramp	0.26	A	0.30	A
Claeys/SR 4 EB Ramp	0.19	A	0.33	A
Sycamore/Palm	0.15	A	0.16	A

Unsignalized Locations One- and Two-Way Stop ³	AM Peak Hour		PM Peak Hour	
	Minor Street <u>LOS</u>	Major Street <u>LOS</u>	Minor Street <u>LOS</u>	Major Street <u>LOS</u>
Claeys/Sycamore	D	A	F	A
I-80/SR 4 Ramp/Bayberry	B	A	C	A
Claeys/SR 4 WB Ramp	A	A	A	A

¹ Volume-to-Capacity Ratio

² Level of Service

³ Worst movement is presented for both the minor and major street approaches

SOURCE: DKS Associates.

p.m. peak hour; project-generated traffic would raise the V/C ratios to 1.35 (LOS F) and 1.37 (LOS F). Therefore, project-generated traffic would cause the p.m. peak-hour LOS at San Pablo Avenue/Sycamore Avenue to degrade below acceptable LOS and would contribute to degraded conditions and an unacceptable level of service in the a.m. peak hour at San Pablo Avenue/Sycamore Avenue and in both the a.m. and p.m. peak hours at San Pablo Avenue/John Muir Parkway. This would be a significant impact.

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Because these two intersections are adjacent to each other, they share a common congested segment of San Pablo Avenue. This segment of San Pablo Avenue, between SR 4 and Sycamore Avenue and further south to the city limit is the primary circulation deficiency identified for future (2010) conditions. San Pablo Avenue is designated as a regional route in the West Contra County Action Plan for Routes Of Regional Significance. As such, it is not subject to the same level of service standards as other "basic routes." Rather, it is subject to a traffic service objective, which is LOS E. The congestion on this section of San Pablo Avenue is due, in large measure, to diversion of traffic from I-80. Analysis of the travel demand modeling indicates that about one-third of the morning peak hour traffic on this section of San Pablo Avenue would use I-80 instead if there was adequate capacity.

The draft *West County Action Plan* cites several potential measures for improving congestion on San Pablo Avenue. The City of Hercules has already programmed a signal coordination project for the four traffic signals between Willow Avenue/Parker Avenue and Hercules Avenue. While these signal projects are important with respect to improving traffic flow in Hercules, they would not have a large impact on San Pablo Avenue traffic operations between Sycamore Avenue and SR 4/John Muir Parkway. The *Action Plan* contains additional measures that are indicated in Mitigation Measure Transportation-1b.

Because of changes in the land use assumptions for the Community Panel Recommended Land Use Concept, the analysis conducted for this report did not include 18.5 acres of planned office/research and development land use in Parcel 3 (Gelsar site). However, it is likely that this parcel would include the 18.5 acres of development at some point in the future. The 18.5 acres would generate an additional 2,200 trips per day, or about 1.3 percent of the total project daily trips. Although not included in the Year 2010 traffic model and analysis, the impacts of the 18.5 acres would not result in any change in the level of service at any intersections, nor would it affect identified mitigation. The Gelsar site is located west of San Pablo Avenue and would affect intersections along San Pablo Avenue, including the intersections at John Muir Parkway and Sycamore Avenue. Both of these intersections are projected to operate at LOS F in the future, and this condition would be slightly exacerbated by the additional 18.5 acres of development. Since each of the other study area intersections are projected to operate well within acceptable levels, no additional impacts would be anticipated.

Impact Transportation-1: Mitigation Measures Proposed as Part of the Project

The following objectives or programs are contained in the proposed Land Use Element Update:

Goal: Preserve and enhance the community's quality of life with well balanced growth and development.

Objective 2: Develop a community that balances housing, jobs, and commercial opportunities.

Policy 2A: Commercial and industrial development shall be consistent with gross intensity ranges in the land use diagram and land use categories. Higher intensity may be permitted if such development is consistent with City's Economic Development Strategy and with specific findings made by the Planning Commission. The findings are:

- The development's benefits in terms of number and quality of jobs, or revenues generated for the City, are significantly greater than would be achieved without the higher density and intensity.
- The proposal is compatible with surrounding development and in keeping with the desired character of the community.
- The impacts of the increased intensity are fully analyzed and mitigated, if possible.

Policy 2B: Develop non-residential Land Use Categories which reduce the need for residents to leave the community by providing a variety of shopping and service opportunities.

Objective 3: Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and protects the quality of life in the community.

Policy 3A: Develop transportation facilities to provide access to the region, particularly public transit systems (buses, ride sharing, and rail transit, as well as potential over-water transit).

Program 3A.1: Provide assistance and support a regional rail transit system and seek funding for a train station in Hercules.

Program 3A.2: Work with BART to develop both short-term and long-term transit facility uses on the BART site in Hercules.

Policy 3B: The Land Use Element and Circulation Element need to be closely coordinated to insure that traffic flow from new development will not overwhelm the carrying capacity of the circulation system.

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Policy 3C: Reasonable traffic flow and direct access between neighborhoods should be provided or preserved, where feasible.

Policy 3D: Create a strong and successful focus or center for business and activities that would provide services and shopping opportunities for, and would attract employees, clients, and patrons from a regional area, while not disturbing existing residential and community oriented areas.

Objective 11: Participate and cooperate in regional and sub-regional planning activities.

Policy 11A: Cooperate with appropriate jurisdictions and/or agencies in preparation of State-Mandated Regional Plans (e.g. Congestion Management and Source Reduction and Recycling Element).

Policy 11B: Participate in regional and sub-regional planning and traffic issues to better address the potential regional impacts upon the community.

Objective 12: Encourage mixed use development that provides for an integrated mixture of residential and employment-generating uses within the same structure.

Objective 13: Minimize the impacts from incompatible land uses on existing and planned development areas.

The following objectives or programs are contained in the proposed Circulation Element Update:

Objective 2e: Coordinate the City's street system with adjoining city, county and state facilities.

Objective 2f: Maintain acceptable local circulation operating conditions on arterial streets/intersections and on local collector streets.

Objective 2h: Promote public transit service with the City and area.

Policy 2a: The policy on traffic level of service reflects the "traffic service objectives" set out in the *West County Action Plan* and the city's Growth Management Element adopted in 1994 to comply with Contra Costa County Measure C (1988). This included adoption of level of service standards on "basic routes" depending on the location of the route: CBD (central business district), urban, suburban, semi-rural and rural. [The level of service standards for Basic Routes in Policy 2a are those standards identified under "Significance Criteria" on p. IV.B-16 of this document. As noted there, the draft *West County Action Plan* traffic service objective for San Pablo Avenue, a Route of Regional Significance, is LOS E.]

Policy 2e: The City should actively participate in cooperative efforts to provide effective public transit to the City and adjacent communities, including promoting commuter rail and a train station in the City to intercept through travelers on I-80.

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Implementation Action 6: Participation in local and regional Transportation System Management (TSM) programs, such as the City's adopted Transportation Demand Management (TDM) Program, which was developed by the West Contra Costa County Transportation Advisory Committee (WCCTAC) and includes guidelines for trip reduction measures.

Implementation Action 7: Establish a traffic mitigation fee to be paid by all remaining development projects to offset the needed improvements outlined in the *General Plan Circulation Element Transportation Technical Report*.

Implementation Action 9: Review of development proposals in terms of circulation and scenic route policies and proposals.

Implementation Action 10: Support area-wide cooperative efforts to expand public transit service to the City and surrounding areas.

Implementation Action 11: Encourage pedestrian and bicycle travel for home-to-work and home-to-local-shopping trips through the provision of pathways and bicycle storage.

Implementation Action 14: Continue programs that include:

- Trip reduction goals for private and public development;
- Actions to reduce peak hour private vehicle trips (e.g. flex-time, car pools, support of transit);
- Traffic routing controls;
- Further review of alternative funding sources; and,
- An implementing and enforcement ordinance.
- Alternative financing methods for fee payment which do not put the City at risk but ease the developer impact/burden.

Impact Transportation-1: Mitigation Measures identified in other *General Plan* Elements

The City shall maintain traffic operations on streets that are designated as "Basic Routes" at the standard described [under "Traffic Service Standards for Basic Routes (Local Streets)"]. These goals replace the Level-of-Service Policy in the [adopted] Circulation Element (page 11, policy 2a). (Growth Management Element, Goal C.1)

The City shall participate in the West Contra Costa Transportation Advisory Committee regarding traffic operations on Routes of Regional Significance, and shall help meet the goals and service standards for these routes by implementing the Action Plans for these routes, as adopted by the City and the Contra Costa Transportation Authority. (Growth Management Element, Goal C.2)

New development shall be required to pay its fair share of the cost of improving existing City streets so that compliance with the designated LOS is maintained. (Growth Management Element, Goal C.3)

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New development shall be required to pay its fair share of the cost of improving regional routes to that compliance with the service standard specified in the Action Plan (when adopted) is maintained. (Growth Management Element, Goal C.4)

The City shall develop and implement a mitigation program to insure that new development pays its fair share of the cost of maintaining adequate operations on the Basic Routes and the Routes of Regional Significance. (Growth Management Element, Implementing Policy/Program E.2)

Mitigation Measures and conditions of project approval may include payment of fees to fund improvements on Basic Routes or Routes of Regional Significance. Fees for improvements to Basic Routes shall be deposited in a separate City Traffic Mitigation Fund. Fees for improvements to a regional route shall be handled in accordance with the Action Plan for the affected regional route. (Growth Management Element, Implementing Policy/Program E.4)

Improvements to Basic Routes shall be programmed through the City's Capital Improvement Program. (Growth Management Element, Implementing Policy/Program E.5)

Improvements to a Route of Regional Significance which are sponsored by the City of Hercules shall also be programmed through the City's Capital Improvement Program. (Growth Management Element, Implementing Policy/Program E.6)

Improvements to a Route of Regional Significance that are not sponsored by the City of Hercules shall be programmed by the sponsoring agency, and may be acknowledged in the City's Capital Improvement Program. (Growth Management Element, Implementing Policy/Program E.7)

The City shall continue to participate actively (at both the staff and the policy level) in the West Contra Costa Transportation Advisory Committee and the Contra Costa Transportation Authority. Participation in these agencies shall include, but may not be limited to, full implementation of adopted Action Plans for Routes of Regional Significance in order to promote acceptable traffic movement on these routes. In the event that problems/issues cannot be resolved through discussion among the affected parties, the City will participate in CCTA's conflict resolution process. (Growth Management Element, Implementing Policy/Program E.8)

The City shall report annually regarding compliance with the Measure C Growth Management Program, or as may be requested by the Contra Costa Transportation Authority. (Growth Management Element, Implementing Policy/Program E.9)

The City shall []³ implement a Transportation Demand Management Program, including the required policies adopted by the Contra Costa Transportation Authority. Such a program may be jointly implemented in western Contra Costa County by the five cities and the County through the West Contra Costa Transportation Advisory Committee. (Growth Management Element, Implementing Policy/Program E.10)

³ The original language in the Growth Management Element reads, "The City shall adopt and implement a Transportation Demand Management Program..." The City has already adopted such a program.

Impact Transportation-1 : Mitigation Measures Identified in This EIR

Transportation-1a: With an objective of maintaining LOS E or better, the City of Hercules could implement the following measure:

- Explore the feasibility of construction of a second northbound right turn lane on San Pablo Avenue between Sycamore Avenue and SR 4 to allow right turns from westbound Sycamore Avenue while preserving the public investment in the City of Hercules transit transfer station (the park-and-ride lot under construction on Parcel 10)

Transportation-1b: With an objective of maintaining LOS E or better, WCCTAC jurisdictions could implement the following measures (many of these measures would be outside the authority of the City of Hercules):

- monitor level of service on San Pablo Avenue;
- encourage completion of Richmond Parkway;
- discourage through traffic on I-80 from diverting onto to local streets through improvements to I-80 such as the HOV lane construction by Caltrans scheduled to begin in 1995, and by requesting CCTA to develop, in conjunction with Caltrans and Solano County, a Traffic Operation System Management plan For I-80 that will regulate the flow of traffic on I-80 to respect the freeway's system's constraints and bottlenecks;
- adopt design standards for new development to minimize turning movements on and off San Pablo Avenue (try to minimize the number of access points on and off San Pablo Avenue);
- synchronize signal timing throughout the San Pablo Avenue corridor;
- emphasize HOV use of I-80 and encourage transit use in the corridor;
- encourage diverted traffic to return to I-80 on the next downstream feeder road through improved signage;
- clearly identify feeder roads for diverted motorists to return to I-80;
- support WestCAT's efforts to assess need for improved transit service along San Pablo; and
- support extension of bicycle lanes to encourage more usage by commuters and shoppers.

Of the measures listed in Transportation-1a and Transportation-1b above, only the measure cited particularly for the City of Hercules (additional right-turn lane on San Pablo Avenue) would cause measurable changes in service levels at the San Pablo Avenue/Sycamore Avenue and San Pablo Avenue/John Muir Parkway intersections. The additional northbound right turn lane would not improve the service levels at these intersections to LOS E, however.

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Even with major geometric improvements at these two intersections that would make San Pablo Avenue a six-lane arterial between Sycamore Avenue and SR 4/John Muir Parkway and would add several turn lanes to accommodate major turn movements, the intersections would still be projected to operate at LOS F, with a volume-to-capacity (V/C) ratio of just over 1.00 in the 2010 cumulative scenario. To have V/C ratios approach 1.00 (LOS E), the turn lane additions that would have to be considered, in addition to widening San Pablo Avenue, would create three westbound-to-southbound left turn lanes and a second southbound-to-eastbound left turn lane at San Pablo Avenue/John Muir Parkway. At San Pablo Avenue/Sycamore Avenue, a third southbound to eastbound left turn lane and a third westbound-to-northbound right turn lane would be needed for the level of service to approach LOS E.

The City would need to consider not only the construction cost of these improvements but also the right-of-way costs and visual impacts. There is currently a median of varying width on San Pablo Avenue between Sycamore Avenue and John Muir Parkway. The median width varies due to the left turn pockets at the intersections. A striped bike lane and landscaping abut San Pablo Avenue along its western frontage (adjacent to the southbound lanes). Along the eastern side of San Pablo Avenue between Sycamore Avenue and John Muir Parkway, there is a striped bike lane and a sidewalk adjacent to the future park and ride lot.

Intersections with triple left turn lanes are unusual and generally indicate the need for an alternative approach to improvements. A triple left turn lane would present several operational concerns, including whether there is adequate roadway width, potential driver confusion (including fear of sideswipes by middle-lane motorists), vehicle weaving "downstream" of the triple left turn lane, adequacy of pedestrian crossing time, and pedestrian-vehicle conflicts. Approaches to significant over-capacity conditions that are typically used include construction of new parallel facilities or the use of grade separations to eliminate conflicting turning movements. It is also common to look for alternative transportation modes to take up the excess demand.

Other Potential Circulation Improvements

Hercules has several options relating to how to address the future deficiency on San Pablo Avenue: The first would be to accommodate the heavy travel "desire line" in the I-80 corridor through additional access and capacity enhancements on San Pablo Avenue. Some or all of the following circulation improvements could help alleviate some of the future congestion identified for San Pablo Avenue:

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1. **I-80/SR 4 Interchange Improvements.** Due to the existing ramp configurations, San Pablo Avenue between John Muir Parkway and Sycamore Avenue acts as part of the I-80/SR 4 interchange. Providing direct connections from the freeways to San Pablo Avenue with potential flyovers of the critical intersections would take some of these movements out of critical intersections.
2. **Increase Capacity on San Pablo Avenue.** Widen San Pablo Avenue from four lanes to six lanes between John Muir Parkway and the southern Hercules City limit.
3. **Grade Separations.** Separate the elevation of the two roadways at the intersections of San Pablo Avenue/John Muir Parkway and San Pablo Avenue/Sycamore Avenue. The grade separations would allow through traffic on San Pablo Avenue to not interfere with turning movements at these intersections. Much of the through traffic on San Pablo Avenue is traveling through the City to and from points outside of Hercules. The turning movements at these intersections involves motorists traveling to and from points within Hercules.

These actions would provide additional capacity, and would encourage use of San Pablo Avenue as a bypass route to the freeway. Although widening of San Pablo Avenue may be possible in Hercules, it would be more troublesome in Pinole. The regional consensus on I-80 corridor capacity issues that developed from the *West County Action Plan* is that diversion of traffic away from I-80 onto San Pablo Avenue should be discouraged, rather than encouraged. The capacity enhancements discussed above would be counterproductive to this regional consensus. As stated in the draft Circulation Element Update:

The City of Hercules, together with other jurisdictions in the I-80 corridor have agreed in developing the West County Action Plan that capacity improvements that encourage the use of San Pablo Avenue will not be considered. This means that the City of Hercules will focus its efforts on working with other West County jurisdictions and regional transit agencies to develop alternatives to single-occupant automobile use in the I-80 corridor. This includes pursuing BART extensions in West County, commuter rail service to Solano County, and improved bus connections. The blueprint for this approach is provided in the *West County Action Plan*.

Thus, the City's second option is to continue to work with other West County jurisdictions and regional transit agencies to develop alternatives to single-occupant automobile use in the I-80 corridor. This would include pursuing BART extensions in West County, commuter rail service to Solano County, and improved bus connections. The blueprint for this approach is provided in the *West County Action Plan*. It should be recognized that this approach is not likely to result in meeting the traffic service objective on San Pablo Avenue (LOS E) if future development in western Contra Costa County, Solano County and the remainder of the Bay Area occurs generally as anticipated in the West County Travel Demand Model. Development under the

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proposed Land Use and Circulation Elements Update would further aggravate traffic conditions on San Pablo Avenue.

Impact Transportation-1: Significance After Mitigation

Significant.

Impact Transportation-2: Traffic generated by development consistent with the proposed Land Use Element would increase volumes at other intersections in Hercules. This would be a significant impact.

Each of the other signalized intersections would operate at an acceptable level of service during both the weekday a.m. and p.m. peak hours. The unsignalized intersections would also operate at acceptable levels of service, with the exception of the proposed Claeys/Sycamore intersection. The Claeys/Sycamore intersection would experience LOS F for minor street (Claeys) left turning vehicles onto Sycamore, and the remaining turning movements would all operate at good service levels.

Impact Transportation-2: Mitigation Measures Proposed as Part of the Project

See Transportation-1, above.

Impact Transportation-2: Mitigation Measures identified in other *General Plan* Elements

See Transportation-1, above.

Impact Transportation-2 : Mitigation Measures Identified in This EIR

Transportation-2a: The City shall design and construct the proposed Sycamore/Claeys intersection and constructed such that there is adequate space between this intersection and the proposed Claeys/SR 4 EB Ramp intersection to allow for potential signalization of the Sycamore/Claeys intersection.

Transportation-2b: If the level of service at the unsignalized Sycamore/Claeys intersection, once constructed, were LOS E or worse, as projected by this analysis, the City would install a traffic signal at this intersection.

Impact Transportation-2: Significance After Mitigation

With installation of a traffic signal, the proposed Claeys/Sycamore intersection would operate at LOS A and the impact would be reduced to a less-than-significant level.

Freeway Operations

Impact Transportation-3: Traffic generated by development consistent with the proposed Land Use Element would contribute to unacceptable cumulative levels of service on the I-80 freeway. This would be a significant impact.

Even with completion of the proposed HOV lanes and other improvements, I-80 is forecast to operate at LOS E/F near Cummings Skyway and LOS F south of SR 4 in 2010 in the peak periods. Demand for portions of the I-80 freeway will be greater than capacity by 2010 as vehicles divert from the I-680 corridor via the planned SR 4 freeway. Increased volumes on I-80 will contribute to increased volumes on San Pablo Avenue, as described in Impact Transportation-1 (Contra Costa Transportation Authority, 1994).

With completion of the planned SR 4 freeway, daily traffic is projected to increase by more than 100 percent as motorists shift from the I-680 corridor. Peak hour demand is expected to increase similarly. With the planned freeway improvements, SR 4 between I-80 and Cummings Skyway, in and near Hercules, is expected to operate at LOS C/D (Contra Costa Transportation Authority, 1994). Therefore, the project would not cause a significant impact on SR 4.

Impact Transportation-3: Mitigation Measures Proposed as Part of the Project

See Transportation-1, above.

Impact Transportation-3: Mitigation Measures identified in other *General Plan* Elements

See Transportation-1, above.

Impact Transportation-3 : Mitigation Measures Identified in This EIR

Transportation-3a: The following planned capital projects for I-80 are included in the Circulation Draft of the West Contra Costa County Action Plan (most of these measures would be outside the authority of the City of Hercules):

1990-2000

- a. Widen for HOV lanes from Bay Bridge toll plaza to Atlas Road
- b. Construct Atlas Road interchange, including HOV ramps
- c. Construct eastbound auxiliary lane between Richmond Parkway and Appian Way
- d. Install ramp metering hardware at all on-ramp locations
- e. Construct 200-stall Park and Ride lot at Atlas Road interchange
- f. Construct auxiliary lanes from Central Avenue to San Pablo Dam Road
- g. Construct Park and Ride lot at the SR 4 interchange

2000-2010

- a. Reconstruct SR 4 interchange
- b. Add transit off-ramp and modify interchange at Cutting Boulevard
- c. Widen for HOV lanes from Atlas Road to Carquinez Bridge toll plaza (some portions in Pinole and Hercules to be complete by 1995)

Transportation-3b: The following is a summary of the Traffic Service Objectives and Actions for I-80 included in the Circulation Draft of the West Contra Costa County Action Plan. Responsibility for implementation rests with the West Contra Costa Transportation Advisory Committee, its member jurisdictions (including Hercules), and applicable transit agencies (many of these measures would be outside the authority of the City of Hercules).

Objective: Increase peak-direction vehicle occupancy on I-80 by 15 percent by 2005.

Actions: Support construction of HOV lanes between SR 4 and Carquinez Bridge.
Seek MTC funding to analyze Richmond/Rodeo-to-San Francisco ferry.
Promote maximum use of new HOV lanes (through bridge toll incentives).

Objective: Increase peak-direction transit ridership in I-80 corridor by 20 percent by 2000.

Actions: Support timed bus/train transfer between BART, AC Transit, and others.
Support continued shuttle service to BART stations.
Participate in I-80 corridor study.
Promote increased frequency of El Sobrante-Richmond-San Francisco buses.
Support expansion of express buses in I-80 corridor.
Encourage adequate parking and bus service at West County BART stations.

Objective: Achieve 50 percent midday utilization of park and ride lots by 2000.

Actions: Support greater security and amenities at park and ride lots.
Promote adequate transit service to park and ride lots.

IV. Environmental Setting, Impacts and Mitigation Measures
B. Transportation and Circulation

Objective: Increase daily West County BART ridership by 10 percent by 2000.

Actions: Support high-level ongoing maintenance and improvements at stations.
Support increased security at stations.

Objective: Achieve daily commuter rail ridership of 6,400 by 2000.

Actions: Support commuter rail from Fairfield and Brentwood to West Oakland.
Assist in determination of appropriate West County station locations.
Support rail stations in Hercules and elsewhere to intercept I-80 vehicle traffic.

Objective: Increase daily trips on Solano County BART feeder bus by 20 percent by 1995.

Actions: Obtain 1990 ridership data from BART.
Promote enhancements to Solano County BART feeder bus service.

Transportation-3c: Although no significant impact was identified, the following planned capital projects for SR 4 are included in the Circulation Draft of the West Contra Costa County Action Plan (these measures would be outside the authority of the City of Hercules):

1990-2000

- a. Construct ramps at Bayberry /a/
- b. Modify Sycamore from intersection to interchange /a/
- c. Construct grade separation; on/off ramps for westbound SR 4 at Willow Avenue /a/

2000-2010

- a. Construct four-lane freeway from I-80 to Cummings Skyway /a/
- b. Improve interchange at Sycamore Avenue /a/
- c. Improve current SR 4 alignment as two-lane arterial parallel to freeway

/a/ These improvements are included in Committed Roadway Network Changes in Table IV.B.6 on p. IV.B-21 of this section and are already assumed in the analysis but are included here in the interest of providing the complete list of improvements.

Transportation-3d: Although no significant impact was identified, the following is a summary of the Traffic Service Objectives and Actions for SR 4 included in the Circulation Draft of the West Contra Costa County Action Plan. Responsibility for implementation rests with the West Contra Costa Transportation Advisory Committee, its member jurisdictions (including Hercules), and applicable transit agencies (many of these measures would be outside the authority of the City of Hercules).

Objective: Achieve LOS E or better by 2000.

Actions: Make SR 4 freeway the highest priority highway project in West County.
Actively pursue funding through MTC for SR 4 freeway.

IV. Environmental Setting, Impacts and Mitigation Measures
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Advocate use of federal and state funds for SR 4 freeway and I-80 HOV lanes.
Monitor SR 4 level of service.
Encourage WestCAT to maintain existing Richmond-Martinez bus service.
Encourage WestCAT to provide service between Richmond and Concord
Encourage WestCAT to increase frequency of Richmond BART service.
Encourage WestCAT to provide timed transfer at Martinez Amtrak station.

Objective: Reduce annual accident rate on SR 4 by 10 percent by 2000.

Actions: Obtain accident data from Caltrans.

Pursue federal, state, and local funds for SR 4 freeway.

Promote construction of SR 4 freeway.

See also Transportation-1, above.

Impact Transportation-3: Significance After Mitigation

Significant.

Public Transportation and Park & Ride Lots

Impact Transportation-4: Policies included in the proposed Circulation Element Update could result in increased use of alternatives to the single-occupancy vehicle. This would not be a significant impact.

Use of alternatives to the single-occupancy vehicle will increase if the West Contra Costa Traffic Advisory Committee and its member jurisdictions, including Hercules, are successful in reducing traffic in the I-80 corridor. Several improvements to transit facilities in Hercules and the West County area are currently under consideration. See Mitigation Measures Transportation-3a and Transportation-3b for proposed improvements in the Draft West Contra Costa County Action Plan. Provisions included in the proposed Land Use and Circulation Elements Update would encourage transit use (see Impact Transportation-1: Mitigation Measures Proposed as Part of the Project).

Impact Transportation-4: Mitigation

No additional mitigation required.

Impact Transportation-4: Significance After Mitigation

Less than Significant.

Bicycle and Pedestrian Facilities

Impact Transportation-5: Development that would occur pursuant to the proposed Land Use and Circulation Elements Update could encourage walking and bicycle use. This would not be a significant impact.

In undeveloped areas, pedestrian sidewalks would normally be provided as part of the developer's responsibility. The City could encourage developers to provide bicycle paths as part of integrated site planning. Provisions included in the proposed Land Use and Circulation Elements Update would encourage walking and bicycle use, where feasible (see Impact Transportation-1: Mitigation Measures Proposed as Part of the Project).

Impact Transportation-5: Mitigation

No additional mitigation required.

Impact Transportation-5: Significance After Mitigation

Less than Significant.

Emergency Vehicle Access

Impact Transportation-6: Traffic generated by development consistent with the proposed Land Use Element would contribute to congestion on local roadways. This would not be a significant impact.

As stated in the Roadway Network Impacts discussion, intersection within Hercules are projected to operate at adequate levels of service in the assumed 2010 buildout year of the proposed Land Use and Circulation Elements Update, with the exception of two key intersections on San Pablo Avenue, at John Muir Parkway and at Sycamore Avenue. Two intersections would operate at LOS F, largely as a result of traffic unrelated to the project diverting off the I-80 freeway onto San Pablo Avenue. Because those intersections serve as "gateways" between the portions of Hercules east and west of I-80 and San Pablo Avenue, they could constrain movement of emergency vehicles. Given emergency vehicles' ability to travel outside normal traffic lanes, this effect would not appear to be substantial. Another constraint to emergency vehicle travel could be traffic volumes on San Pablo Avenue and on I-80.

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B. Transportation and Circulation

Impact Transportation-5: Mitigation

No additional mitigation required.

Impact Transportation-6: Significance After Mitigation

Less than Significant.

REFERENCES - Transportation and Circulation

Caltrans, *1992 Traffic Volumes on California State Highways*, 1993a.

Caltrans, *Project Study Report/Initial Project Report On Route 4 Between The I-80/Route 4 Interchange and the Cummings Skyway/Route 4 Interchange*, March 15, 1993b.

CCS Planning and Engineering, *Traffic Impact Report For State 4/Willow Avenue Grade Separation Project*, September 1993.

Contra Costa Transportation Authority, *Intersection Level of Service Analysis Program*, Users Manual, September 1992a.

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City of Hercules, *Final Environmental Impact Report, Franklin Canyon Golf Course*, General Plan Amendment, Rezoning and Request for Annexation, June 1986.

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City of Hercules, *Highway 4 West and San Pablo Avenue Circulation Improvement Plan*, Presentation to WCCTAC, December 14, 1990.

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City of Hercules, *Draft Environmental Impact Report, Pacific Refining Company Improved Fuels Modification Project*, July 1993a.

IV. Environmental Setting, Impacts and Mitigation Measures

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TJKM, *Traffic Impact Study Of The North Shore Business Park - Lots 5 and 6*, Final Report, July 1993.

Transportation Research Board, *Circular 212*, 1980

Transportation Research Board, Special Report 209, *Highway Capacity Manual*, 1985.

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Transportation Research Board Washington, D.C., *Highway Capacity Manual*, Special Report 209, 1985.

C. POPULATION, EMPLOYMENT AND HOUSING

INTRODUCTION

This section identifies the potential impacts on population and employment growth, housing demand, and the jobs/housing balance that would result from implementation of the Land Use Element Update. Association of Bay Area Governments (ABAG) data for the City of Hercules includes figures for baseline population, jobs, and demographic information in year 2010.

Sedway & Associates has estimated project-related figures at buildout of the Land Use Element in year 2010. Population estimates were calculated by multiplying the persons per household rate by the projected housing development. The estimate of 2.89 persons per household is based on ABAG's forecast for Hercules in 2010 contained in *Projections '94* (ABAG, 1993). The estimated number of additional jobs is based on square feet per employee figures multiplied by the developable square feet included in the project for each parcel. Employed residents are the product of the estimated number of residents and the ratio of employed residents, as indicated in ABAG's projections (Sedway & Associates, 1994). A Fiscal Analysis in Appendix F of this EIR evaluates the economic impacts associated with physical buildout of the City.

SETTING

Population

The 1994 population for Hercules is estimated to be 18,898 (Tagashira, 1994). As shown in Table IV.C.1, the City's population in 1970 was approximately 250 when Hercules was a company town of the Hercules Powder Company, and increased to 6,830 in 1980. Between 1980 and 1990, the City's population increased by approximately 146 percent. The substantial increase was due to a housing boom in the late 1970s and 1980s, a convenient location on I-80 approximately 25 miles northeast of San Francisco, and the availability of large, relatively inexpensive land (City of Hercules, 1990). ABAG projections indicate that in 2000 and 2010, based on the existing *General Plan*, the City's population is expected to reach approximately 21,700 and 23,600 people, respectively (ABAG, 1993).

The number of persons per household in Hercules in 1990 was estimated to be 3.17 (ABAG, 1993). This figure represents a decrease from the estimated 3.25 persons per household in 1980, and is substantially higher than the Contra Costa County estimate for 1990 of 2.64 persons per household (ABAG, 1993).

TABLE IV.C.1: CITY OF HERCULES POPULATION TRENDS

<u>Year</u>	<u>Total Population</u>	<u>Net Increase</u>	<u>Net Increase (Percent)</u>
1970	250	N/A	N/A
1980	6,830	6,580	2,600
1990	16,840	10,110	146
2000 /a/	21,700	4,860	29
2010 /a/	23,600	1,900	9

N/A = Not available.

/a/ ABAG forecasts are based on current *General Plan*.

SOURCE: ABAG, 1993; City of Hercules, 1990.

The City's population is composed of many different ethnic/racial groups, with non-Caucasians accounting for a majority of the City's residents. Asian and Pacific Islander residents are the largest racial group in the City, accounting for approximately 41.1 percent of the total population. After Asian and Pacific Islander, Caucasian is the next largest racial group, accounting for approximately 35.1 percent of the total population (U.S. Census, 1990).

Census data show that, in general, the average age of City residents is younger than most of the surrounding communities. The City's median age in 1990 was 28.4 years, compared to 31.5 years in Contra Costa County and 31.3 years in the Bay Area. Currently, the number of elderly residents and young families is increasing, and this trend is likely to continue over the next decade (City of Hercules, 1990). Age characteristics for the City's 1990 population are presented in Table IV.C.2.

In 1990, the estimated average (mean) household income for the City of Hercules was \$62,456 (all income numbers are presented in constant 1990 dollars). This represents a six percent increase from the 1980 average household income of \$59,126. The estimated average household income for Contra Costa County in 1990 was \$59,434; the average income in 1980 was \$50,050. Over the last decade, the gap between the average incomes of Hercules and Contra Costa County

IV. Environmental Setting, Impacts and Mitigation Measures
C. Population, Employment, and Housing

TABLE IV.C.2: CITY OF HERCULES AGE CHARACTERISTICS, 1990

<u>Age Group</u>	<u>Number</u>	<u>Percentage</u>
Under 16 years	4,708	28.0
16 - 20 years	1,345	8.0
21 - 40 years	5,548	33.0
41 - 65 years	4,371	26.0
66 years and over	<u>841</u>	<u>5.0</u>
TOTAL	16,814	100.0

SOURCE: U.S. Census, 1990.

residents has narrowed, and Hercules' average income is now five percent above the Contra Costa County's average income (ABAG, 1993).

Employment

In 1990, there were approximately 2,370 jobs in Hercules, constituting approximately 0.8 percent of the total 305,140 jobs in Contra Costa County (ABAG, 1993). The largest employer in the City is Bio-Rad Laboratories, a light industrial company that manufactures and sells chemical and clinical equipment. Other large employers are Pacific Refining Company, Mechanics Bank, the West Contra Costa Unified School District, and the City itself. Similarly to the County as a whole, Hercules' jobs were primarily in the services and wholesale and manufacturing sectors (see Table IV.C.3). There were an estimated 9,406 employed residents in Hercules in 1990, or 56 percent of the total population. Contra Costa County, by comparison, had 409,351 employed residents in 1990, or 51 percent of the total County population (ABAG, 1993).

ABAG Projections indicate that service, manufacturing and wholesale jobs will grow substantially in the City, while retail growth, agriculture and mining job growth will remain relatively low or constant (ABAG, 1993).

TABLE IV.C.3: JOBS BY INDUSTRIAL SECTOR, HERCULES, 1990

<u>Industrial Sector</u>	<u>Percent of Total Jobs</u>
Manufacturing and Wholesale	38.4
Retail	17.3
Services	20.3
Other/1/	<u>24.1</u>
Total	100.0

Note: Totals may not add due to rounding.

/1/ Finance/insurance/real estate, government, transportation/communication/utilities, and construction.

SOURCE: ABAG, 1993.

Housing

As of January 1993, there were approximately 5,850 occupied housing units in the City. The housing stock in the City has increased substantially over the last two decades in conjunction with the population increase, and is characterized by a high number of single-family homes. Of the total housing stock, approximately 59 percent is single-family detached homes, and approximately 29 percent is single-family attached homes. The remaining 12 percent of the housing stock is multi-family units (Department of Finance, 1993).

Although housing prices have increased in the last decade, homes in Hercules generally remain more affordable than other places in the Bay Area. The median value of a owner-occupied housing unit in the City in 1990 was \$224,700 (U.S. Census, 1990). Approximately 83 percent of the homes were valued between \$100,000 and \$300,000 (U.S. Census, 1990).

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Jobs/Housing Balance

Many communities in the Bay Area have experienced greater growth in housing units than in jobs (or vice versa), resulting in a jobs/housing "imbalance." One measure of the jobs/housing balance in a community is a comparison of the number of jobs with the number of employed residents. It is assumed that a balance in the number of employed residents and job opportunities would minimize commuting, thus reducing environmental impacts related to air quality and transportation. In an ideal situation, the ratio of jobs to employed residents would be 1:1, meaning (in theory) that each of the City's employed residents would hold a job in the City. In practice, this is usually not the case, since there are other factors that affect housing and job location choices.

Using this means of comparison, there were 2,370 jobs and 9,406 employed residents in Hercules in 1990, or 0.25 jobs for every employed resident. This imbalance theoretically resulted in a net out-commute of the additional 7,036 employed residents to jobs outside the area. For this reason, Hercules is known as a "bedroom community," a place where people choose to live and commute elsewhere to work. ABAG projections indicate that in 2010, under the current *General Plan*, Hercules would have a jobs/housing ratio of 0.50, with approximately 6,980 jobs and 13,900 employed residents (ABAG, 1993). These numbers indicate a favorable shift in the jobs/housing balance, as more of the City's residents could work within City limits.

IMPACTS AND MITIGATION MEASURES

Significance Criteria

Under CEQA, a project would normally have a significant impact on the environment if it would induce substantial growth or concentration of population or displace a large number of people (Appendix G, *CEQA Guidelines*). Appendix I of the *CEQA Guidelines* indicates that a project could have a significant effect on the environment if it altered the location, distribution, density or growth rate of the human population of an area. According to the *CEQA Guidelines* Section 15131(a), economic or social effects of a project are not treated as significant effects on the environment. If the proposed project were to cause physical changes as a result of economic or social changes, then the physical effects (such as increased traffic from increased employment-related travel or destruction of habitat resulting from housing construction to

IV. Environmental Setting, Impacts and Mitigation Measures

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accommodate increased population) could be considered significant. Those impacts are discussed in the applicable sections of this document.

Impacts and Mitigation

Impact Population-1: Development consistent with the proposed Land Use Element would increase the number of jobs relative to employed residents, thereby decreasing the jobs/housing imbalance. This would be a beneficial impact.

The proposed Land Use Element Update includes objectives and policies that would increase jobs and population in the City, including: Objective 1; Policy 2A; Policy 5A and 5B; and Objective 12. The objectives are listed in Section II of this EIR. Table IV.C.4 shows population, employment, and housing data for the City of Hercules in 1990 and 2010, under both the existing and proposed Land Use Elements. As shown in the table, development consistent with the proposed Land Use Element Update would increase the population, number of households, total employment and employed residents, relative to both existing conditions and the current *General Plan*. It is important to note that this scenario would occur if all parcels were fully developed with the proposed land uses. Buildout of the City under the proposed Land Use Element could occur later than 2010. In that case, the increases shown in the table would occur, but over a longer period.

The proposed Land Use Element Update would result in proportional increases in the total population and number of households. As shown in Table IV.C.4, the existing Land Use Element would allow for a 25 percent increase in total population (relative to 1994 conditions), and the proposed Land Use Element would allow for a 58 percent increase in total population compared to 1994. Additional growth due to approved and reasonably foreseeable development, including proposed residential and hotel development at the Franklin Canyon site along SR 4, would result in a 73 percent increase in population by 2010, compared to 1994.

The proposed Land Use Element Update would substantially increase employment (number of jobs in the City), due to the large amount of land designated for commercial land uses. The proposed Land Use Element Update could result in up to a 507 percent increase in total employment (number of jobs in the City) over existing (1994) conditions, compared to a 131 percent increase that could occur under the existing Land Use Element. The proposed Land Use Element Update could increase the number of employed residents by 58 percent, compared to a 43 percent increase under the existing Land Use Element. The increases in total

IV. Environmental Setting, Impacts and Mitigation Measures
C. Population, Employment, and Housing

TABLE IV.C.4: EXISTING AND PROJECTED HOUSEHOLDS, POPULATION AND EMPLOYMENT, CITY OF HERCULES /a,b,c/

	<u>Total Population</u>	<u>Number of Households</u>	<u>Total Employment</u>	<u>Employed Residents</u>	<u>Jobs/Housing Balance</u>
1990 Conditions	16,839	5,308	2,370	9,406	0.25
1994 Conditions	18,898	6,345	3,025	9,700	0.31
2010 - Existing Land Use Element	23,600	8,160	6,980	13,900	0.50
2010 - Proposed Land Use Element	29,927	10,161	18,356	15,285	1.20
2010 - Proposed Land Use Element + Cumulative /d/	32,719	11,127	18,608	16,711	1.11

/a/ Source for 1990 and 2010 Existing *General Plan* conditions for total population, number of households, total employment, and employed residents is Association of Bay Area Government's *Projections '94*.

/b/ Source for 2010 Proposed *General Plan* conditions is Sedway & Associates.

/c/ Data for 1994 from City of Hercules.

/d/ Includes 166 approved but unbuilt units and 800 units plus hotel proposed at Franklin Canyon.

SOURCE: Sedway & Associates, 1994; Association of Bay Area Governments, 1993.

employment and employed residents would change Hercules from a net supplier of employed residents to a net supplier of jobs. This could result (theoretically) in approximately 3,071 employees commuting to jobs in Hercules from outside areas compared to a net in-commute of 7,036 at present and 6,920 in 2010 with the existing Land Use Element. The jobs/housing ratio under the proposed Land Use Element Update could increase to 1.20, compared to 0.50 under the existing Land Use Element at buildout. With cumulative development, the jobs/housing ratio would be approximately 1.11.

IV. Environmental Setting, Impacts and Mitigation Measures

C. Population, Employment, and Housing

As noted, the jobs/housing ratio implies a theoretical balance or imbalance between a community's employment and housing supply. Because the type of jobs created would determine the workers who would fill those jobs, the creation of jobs in Hercules under the proposed Land Use Element would not in itself result in providing employment to all Hercules residents who currently work outside the City. Salaries offered, education required, and unique attributes of particular jobs would, along with other factors, determine whether new jobs would be filled by current residents, by persons who would move to Hercules from elsewhere, or by persons who would commute to new jobs in Hercules from housing elsewhere. New jobs could result in demand for new housing, either in Hercules or elsewhere, if those jobs were not suited for current Hercules residents. New service jobs could result in a particular demand for low- and moderate-cost housing.

Policies in the proposed Land Use Element Update would allow for more jobs relative to the number of employed residents. Assuming that a jobs/housing balance is desired, this would be beneficial impact, as the total number of residents who commute into and out of Hercules could be less than under the existing Land Use Element. The project would not displace existing populations. The potentially significant indirect impacts related to an increase in total population, employed residents, and total employment are discussed in Sections IV.A., Land Use, Plans and Policies, IV.C., Circulation, and IV.K., Air Quality. Direct and indirect impacts related to increased density of land use and greater development are discussed throughout the impact analysis in Chapter IV of this report.

Impact Population-1: Mitigation Measures Proposed as Part of the Project

The following objectives, policies, or programs are from the proposed Land Use Element Update:

Objective 1: Achieve a level of population and employment which preserves and enhances the desired character of the community.

Objective 2: Develop a community that balances housing, jobs, and commercial opportunities.

Objective 3: Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and protects the quality of life in the community.

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Objective 5: Develop and maintain a pattern of residential land uses which provide for a variety and balance of densities and opportunities for a mix of dwelling and residential type.

Policy 5B: State law requires the City to allow development of new residential areas and units as part of meeting the regional need for housing.

Program 5B.1: Review on a periodic basis the affordable housing needs identified in the Housing Element and encourage housing to meet those needs.

Program 5B.2: Encourage development of innovative types of housing, including co-housing, congregate care facilities, and other types of housing that may provide low cost alternatives to typical housing.

Policy 5C: Provide additional affordable and/or senior citizen housing.

Program 5C.1: Develop an affordable housing strategy which includes an implementation plan and financial and non-financial incentives for the development of such housing.

Objective 6: Provide residential neighborhoods with a variety of cost ranges disbursed throughout the City.

Objective 11: Participate and cooperate in regional and sub-regional planning activities.

Impact Population-1: Mitigation Measures Identified in other *General Plan* Elements

Provide a sufficient number of affordable housing units to meet the needs of current Hercules residents and provide a fair share of the market area housing needs, as outlined by the Association of Bay Area Governments. (Housing Element Goal 1)

New housing should include a variety of home designs, at various densities and price levels, both lower and higher than presently available. (Housing Element Policy 1.2)

Provide well-designed, well-built housing units for low- and moderate-income households in mixed-density developments, including Planned Unit Development (PUD), avoiding a concentration in any limited area. (Housing Element Policy 2.1)

Expand the number of rental units for those who cannot afford to purchase or who chose to rent. (Housing Element Policy 2.2)

Impact Population-1: Mitigation Measures Identified in this EIR

None Identified.

Impact Population-1: Significance After Mitigation

No mitigation is required, and the impact would remain less than significant.

REFERENCES - Population, Employment and Housing

Association of Bay Area Government (ABAG), *Projections '94*, December 1993.

City of Hercules, *General Plan* Housing Element, June 26, 1990.

Department of Finance, Population and Housing Estimates of California Cities and Counties, Report E-5, May 1993.

Sedway & Associates, facsimile to ESA, July 7, 1994.

Tagashira, Dennis, Associate Planner, Hercules Community and Business Development Department, telephone conversation, November 22, 1994. Population information from California Department of Finance.

U.S. Census, Summary of Population and Housing, 1980.

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D. VEGETATION AND WILDLIFE

SETTING

Regional

The City of Hercules is located on the east side of San Pablo Bay and north of San Francisco Bay. This area, northwest of the Diablan Range, is within the Central Coast Floristic Province with coastal vegetation communities such as salt and freshwater marshes, coastal prairie, and coastal scrub. These vegetation communities once supported an array of sensitive wildlife species unique to these communities, such as the Salt Marsh harvest mouse (*Reithrodontomys raviventris raviventris*) and the Salt Marsh wandering shrew (*Sorex vagrans halicoetes*). Open grasslands, once ranging to the east as far as the Diablan Coast Range, supported large predators such as nesting golden eagles (*Aquila chrysaetos*) and coyote (*Canis latrans*). Today, very few of these communities are found in Hercules, which is bounded by the City of Pinole on the south, and on the north, by the unincorporated community of Rodeo.

Local

The majority of Hercules lies within the Refugio Creek watershed, and includes the east and west branches of Refugio Creek that converge into one creek west of San Pablo Avenue. Water flows from the hills in the southeastern area of Hercules to San Pablo Bay in the northwestern area. Refugio Creek empties into the bay north of Hercules Point. Most of the riparian habitat is found along the borders of these creeks. Natural communities occurring in Hercules consist of tidal saltmarsh along Hercules Point, non-native grasslands interspersed with coastal scrub in the foothills, and riparian habitat along Refugio Creek. Seasonal wetlands occur in the valley west of I-80.

Methodology

An ESA biologist conducted a field survey of the 24 parcels in the study area on October 12, 1993. The California Department of Fish and Game's (CDFG) Natural Diversity Data Base was consulted, and a review was performed of available biological literature and previous studies conducted in the vicinity.

Site Descriptions

The following describes the vegetation of the 24 parcels in the study area. Please refer to Figure III.2 in Section III, Project Description, for locations of these parcels.

1. Hercules Properties, Inc. Set in the historic area of Hercules, this 106-acre property contains 40 to 50 industrial and commercial structures and a few residential units with ornamental trees and shrubs and landscaping. A wetland occurs west of the sewage treatment plant and is heavily vegetated. Refugio Creek runs through the parcel in a east to west direction.
2. Hercules Point. This 15-acre parcel, located on Hercules Point, contains abandoned structures once a part of the Hercules chemical plant. Salt marsh habitat surrounds the plant equipment but is isolated from other salt marshes. Refugio Creek empties into San Pablo Bay at the northwestern tip of the property.
3. Gelsar, Inc. The 104-acre Gelsar, Inc. parcel borders the northeastern edge of Hercules Properties, Parcel 1. The majority of the parcel is non-native grassland with seasonal wetlands occurring east of the sewage treatment plant. Refugio Creek runs from east to west with the West Branch of Refugio Creek joining the main creek on the eastern portion of the property. The eastern portion of the parcel also supports eucalyptus trees.
4. Hercules Inc./San Pablo. This 41-acre parcel is adjacent to over 100 acres of undeveloped lands on Parcels 1 (beyond the sewage treatment plant) and 3. The eastern portion of this property contains steep hillsides that have resulted in the formation of a small pond and wetlands on the western portion. (Part of this parcel is in use as a Little League baseball field.)
5. MRB. Surrounded by residential units on the northwest and San Pablo Avenue on the southeast, this 6-acre hillside parcel is also adjacent to Parcel 4. Eucalyptus trees occur on the east and south sides and non-native grasslands occur on the majority of the site.
6. North Shore Business Park. This 144-acre parcel is partially developed as a complex of office buildings surrounded by landscape and non-native grassland. The entire site has been graded to accommodate eventual development. Infrastructure has already been developed in the form of roadways to as-yet unbuilt sites. This area does not support any wetland areas.
7. ANR Site. This parcel, 62 acres, is being overgrazed by dairy cows and shows signs of erosion. Non-native grassland and a few valley oaks occur on site.
8. Hercules Square Site. This three-acre site is currently undeveloped. It is graded and covered with gravel; non-native grasses exist at the margins of the parcel.
9. ORB Site. Recently graded for construction of a retail development, this site contains little remaining vegetation. It was formerly heavily vegetated with upland species such as coyote bush.

IV. Environmental Setting, Impacts and Mitigation Measures

D. Vegetation and Wildlife

10. BART Site. Formerly vegetated with non-native grasses and ruderal species (able to grow in heavily disturbed areas), this site was graded in 1994 for construction of a transit center. The East Branch of Refugio Creek runs in a culvert through the southern portion of this seven-acre site.
 11. I-80 Exit Loop. Once used as a staging area for roadwork, this six-acre parcel contains ruderal vegetation, trees and a potential wetland.
 12. TABCO Site. Adjacent to the I-80 ramp, the PG&E substation and Caltrans, this nine-acre site contains non-native grassland and a small wetland.
 13. Sycamore Site. This parcel is approximately 25 acres, and consists of non-native grassland and ruderal plants. The eastern end of the parcel contains a wetland and willow scrub riparian vegetation in a ditch at the base of the railroad tracks.
 14. Five Giants Site. This parcel, west of the railroad tracks and east of SR 4, contains seven acres of non-native grasslands.
- A. Church of Nazarene Site. Located on Refugio Creek, in the Refugio Creek Linear Park, this five-acre parcel has a riparian corridor and bike path running through it. On the northern side of the property non-native grassland occurs on the hillside.
 - B. McLeod Family Site. This 7.4-acre parcel contains a single-family residence, several sheds, a horse stable and pasture area, with eucalyptus trees along the southern border. Houses border the south and west boundaries with San Pablo Avenue on the east side.
 - C. Citation Site. Situated next to a homeowner's association park, this 5.6-acre parcel contains a drainage to collect upstream and on-site storm run-off and divert it to the wetland area adjacent to the Chelsea by the Bay homes. This ditch contains tules and willow trees running from north to south. On the east side of the parcel a grove of eucalyptus trees runs from east to west. The understory of this site is non-native grassland which had been recently mowed at the time of the site visit.
 - D. Carone -1 Site. This two-acre parcel is north of the Santa Fe Railroad right-of-way and is used for construction equipment storage, with non-native grassland and ruderal species occurring.
 - E. Carone - 2 Site. This 1.8-acre parcel is north of the Santa Fe Railroad right-of-way and consists of a staging area and equipment storage. Ruderal species are present.
 - F. Carone Sycamore Site. This 2.6-acre parcel is adjacent to the Santa Fe Railroad right-of-way and consists of non-native grassland in the southern portion and Refugio Creek in the northern portion of the site.
 - G. Old ATSF Site. This 1.7-acre parcel, located south of the Santa Fe Railroad right-of-way, contains non-native grasses.

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- H. Creekside Site. Located at and adjacent to the existing Creekside Shopping Center, this 25-acre site is primarily developed as retail uses. The undeveloped eastern portion is graded and partially paved and also contains non-native grasses.
- I. Willow Center Site. This 3.4-acre site contains the Willow Shopping Center and is largely developed and/or graded.
- J. Church of Christ Site. This seven-acre site, bisected by the Santa Fe Railroad right-of-way, contains non-native grasslands and ruderal species.

Vegetation

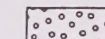
Identification of Natural Communities

Natural communities are recurring combinations of species that reflect parallel responses to similar combinations of environmental conditions, as defined by the California Native Plant Society (CNPS, 1988). Plant communities play an important role in the ecosystem as they provide water, food, shelter, and foraging grounds for a variety of wildlife species as well as improving water quality and preventing soil erosion. Together with the California Department of Fish and Game (CDFG) and the Natural Diversity Data Base, the CNPS Rare Plant Program lists approximately 375 natural communities. Almost half of these communities are considered scarce or threatened. Loss of these communities could cause a decline in population numbers of species dependent on these communities. Figure IV.D.1 shows the approximate locations of natural communities present in and around the study area. Table IV.D.1 lists the communities present on each parcel. A detailed description of each community within the project area follows.

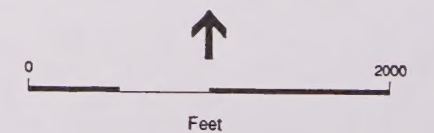
Salt Marsh and Freshwater Wetlands

Salt marsh is a transitional community occurring along margins of bays, lagoons and estuaries sheltered from excessive wave action. The lower margin of the community is exposed twice every 24 hours to tidal action, and the upper margin is exposed to tidal action infrequently and for short periods of time (Mayer and Laudenslayer, 1988). The upper part of estuaries grade into brackish and freshwater marshes. Elevational gradients, from lower saline sites to higher brackish sites, determine the species found, for example, cordgrass, pickleweed, jaumea, California seablite, arrowgrass, to tule bulrush, common cattail, and coast carex. Within the City of Hercules this habitat occurs on Hercules Point (Parcel 2).



-  Creek, Pond
-  Freshwater Wetlands (potential)
-  Non-Native Trees (eucalyptus)
-  Riparian (Willows)

SOURCE: Environmental Science Associates



Hercules General Plan Land Use and
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Figure IV.D.1
Vegetation Communities
within the City of Hercules

TABLE IV.D.1: HABITAT PRESENT AND POTENTIAL IMPACTS BY PARCEL

Parcel Name	Habitat/Development Present	Habitat Potentially Subject to Impact
1- Hercules Properties	seasonal wetlands, developed areas, ornamental landscaping	wetlands
2- Hercules Point	tidal salt marsh and developed areas	salt marsh
3- Gelsar Inc.	non-native grassland and seasonal wetlands	wetlands
4- Hercules Inc./ San Pablo site	seasonal wetlands	wetlands
5- MRB site	non-native grassland	none
6- North Shore Business Park	non-native grassland and developed areas	none
7- ANR site	non-native grassland	none
8- Hercules Square site	non-native grassland	none
9- ORB site	graded; some non-native grasses	none
10- BART site	graded	none
11 -I-80 Exit Loop site	ruderal vegetation; potential wetland	wetlands
12 -TABCO site	potential wetland	wetlands
13- Sycamore site	non-native grassland, ruderal plants, potential wetlands	wetlands
14- Five Giants site	non-native grassland	none
A- Church of Nazarene	riparian corridor and non-native grassland	riparian
B- McLeod Family	ruderal species	none
C- Citation	potential wetland, willow trees, non-native grassland	riparian and wetlands
D- Carone - 1	non-native grassland and ruderal species	none
E- Carone - 2	ruderal species	none
F- Carone Sycamore	non-native grassland and riparian	riparian
G- Old ATSF	non-native grasses	none

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TABLE IV.D.1: HABITAT PRESENT AND POTENTIAL IMPACTS BY PARCEL
(Continued)

Parcel Name	Habitat/Development Present	Habitat Potentially Subject to Impact
H- Creekside	non-native grassland and developed areas	none
I- Willow Center	largely developed	none
J- Church of Christ	non-native grasslands and ruderal species	none

SOURCE: Environmental Science Associates, 1994

Coast and valley freshwater marsh is dominated by perennial, emergent (rooted in water but growing upright out of water) monocots (a group of the flowering plants generally with parallel veins and single-leaved embryos), often forming completely closed canopies (Holland, 1986). This community prefers areas lacking strong currents and that are permanently flooded with freshwater. Found along the coast and in coastal valleys near river mouths and margins around lakes and springs, this community is extensive in the Sacramento-San Joaquin River Delta. Typical species found in this community include sedges (*Carex* sp.), spike-rush (*Eleocharis* sp.), tule (*Scirpus* sp.), and cattail (*Typha* sp.).

Due to the regional loss of habitat and potential for this community to support a number of special status plant and wildlife species, freshwater marsh is considered a community of concern by the CDFG (CNDDDB, 1993). Within the project area approximately 27 acres of freshwater wetlands occur (Parcels 1, 3, 4, 11, 12, 13, A, and C).

Riparian

The willow scrub riparian community is an open to dense, broadleaf, winter-deciduous streamside thicket dominated by any of several willow species, usually as small trees or shrubs. Very little herbaceous understory component is found in dense stands; more open stands support a number of weedy species characteristic of non-native grasslands (Holland, 1986).

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Arroyo willow (*Salix lasiolepis*) is the dominant canopy species occurring in this riparian community throughout Hercules. Most of the herbaceous understory component present is comprised of such non-native grasses as wild oat (*Avena barbata*), ripgut grass (*Bromus diandrus*), and Italian rye grass (*Lolium perenne*), as well as various introduced herbs including yellow sweet clover (*Melilotus indica*), burclover (*Medicago polymorpha*), and wild mustard (*Brassica* sp.). Cattails (*Typha* sp.) are also present in the creek channels. The remaining willow community in Hercules occurs along the main channel of Refugio Creek east of I-80.

Approximately eight to nine acres of this community occur in the project area (Parcels A, C, and F).

Central Coast live oak riparian forest forms a low, evergreen sclerophyllous (small, gray-green leaves adapted to Mediterranean climates) riparian forest dominated by coast live oak (Holland, 1986). The understory in this community is generally composed of fairly extensive native bunchgrasses and non-native grasses, intergrading with scrub and chaparral species such as coyote brush, California mugwort, gooseberry (*Ribes* sp.), bedstraw (*Galium aparine*), rush, and California rose (*Rosa californica*). Within the City of Hercules, this community occurs along the banks of drainages in the southeastern portion. Within the City of Hercules this habitat occurs along the southeastern portion of the City and on Parcel 1 (Toups Engineering, 1972).

The east branch of Refugio Creek, which flows from the southeastern portion of Hercules to the northwest and joins with the main channel of Refugio Creek, contains a diverse flora composed of California bay (*Umbellularia californica*), coast live oak, and arroyo willow (*Salix lasiolepis*), with the dominant species being willow. Understory vegetation along this stream is composed of iris-leaved rush (*Juncus xiphioides*), spike rush (*Eleocharis* sp.), dock (*Rumex* sp.), creek monkey flower (*Mimulus guttatus*), miner's lettuce, and willow herb (*Epilobium* sp.). This riparian community commonly occurs in outer floodplains along perennial and ephemeral streams of the Coast Range from Sonoma County south to near Point Conception (Holland, 1986).

Non-Native Trees

Eucalyptus groves are the dominant tree masses within Hercules, and are predominately blue gum (*Eucalyptus globulus*). Shade created by the eucalyptus canopy, combined with volatile chemicals contained in the large amount of bark and leaf litter deposited by eucalyptus, create poor growing conditions for most herbaceous and woody understory species. Where fire hazard

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management techniques have not been applied the understory of this community consists of a thick layer of bark, leaves, and poison oak (where openings in the canopy allow sufficient light to penetrate to the grove floor). Groves of eucalyptus, approximately 27 acres in total, are located throughout the project area. The City has considered removing some of the eucalyptus trees because of concern over fire hazard and safety hazard from falling limbs and trees. Fallen eucalyptus debris also presents a street and storm drain maintenance problem.

Grassland

Non-native grassland, found in valleys and on hillsides throughout most of Hercules, is dominated by non-native species such as soft chess (*Bromus mollis*), ripgut grass (*Bromus diandrus*), hair barley (*Hordeum leporinum*), wild oat (*Avena barbata*), foxtail (*Hordeum* sp.), perennial ryegrass (*Lolium perenne*), and foxtail chess (*Bromus rubens*). Native forbs (wildflowers) including lupines (*Lupinus bicolor*), soaproot (*Chlorogalum pomeridianum*), California buttercup (*Ranunculus californicus*), fiddleneck (*Amsinckia* sp.), blue dicks (*Dichelostemma pulchellum*), checkerbloom (*Sidalcea malvaeflora*), yarrow (*Achillea millefolium*), Johnny jump-ups (*Viola pedunculata*), and California poppy (*Eschscholzia californica*) are an integral part of this community's floral mosaic producing showy "blooms" during spring and early summer. Non-native grassland is commonly found on fine-textured (often clay) soils, which are moist or waterlogged during the winter rainy season, and dry during the summer/fall drought (Holland, 1986). Occasional shrubs and trees such as coyote brush (*Baccharis pilularis* var. *consanguinea*) and valley oak (*Quercus lobata*) occur within this community depending on specific site conditions (i.e. microclimate). Oak woodlands and riparian forests are often adjacent on mesic (moist), better drained soils, while in more xeric (dry) locations, this community intergrades with scrubs and chaparrals. Non-native grassland is common below 3,000 ft. throughout most of California, except for the north coastal and desert regions (Holland, 1986).

Non-native landscaped vegetation occurs primarily within North Shore Business Park (Parcel 6), and Hercules Square (Parcel 8). Non-native vegetation primarily consists of blue gum (*Eucalyptus globulus*), flowering plum (*Prunus* sp.), various pines (*Pinus* sp.), and turf, intermixed with ornamentals such as periwinkle (*Vinca major*) and tea roses (*Rosa* sp.). Native California species, such as Monterey pine (*Pinus radiata*), coast redwood (*Sequoia sempervirens*), alder (*Alnus* sp.), elm (*Ulmus* sp.), and cottonwood (*Populus* sp.) were also planted and are scattered throughout Hercules.

Wildlife Habitats

Wildlife habitats are not as delineated as vegetation communities, which are defined by certain plant species adapted to specific environmental conditions. Wildlife habitats consist of an area or place where an organism lives, composed of various vegetation communities creating different areas for different life cycle needs, such as foraging areas, nesting areas, and shelter from predators. Vertebrates, such as amphibians, reptiles, birds and mammals, are not as restricted to certain communities as invertebrates. Invertebrates are often food-plant-specific and require particular plants, usually in specific communities, for various stages of their life cycles. The lack of restriction for vertebrates allows them to use various communities for their foraging needs. Figure 1 shows the locations of wildlife habitats found within the project location and Table 1 describes which habitats support sensitive species.

Salt Marsh

The salt marsh is an important ecosystem providing food and cover for a variety of species including nesting endemic bird and mammal species, such as California clapper rail, California black rail, salt marsh harvest mouse and wandering vagrant shrew. These species, because of their restriction to salt marshes, are listed as endangered. Common species, such as herons and egrets, use the salt marsh for foraging while nesting in nearby riparian areas. Waterfowl use salt marshes during the winter and spring migrations along the Pacific Flyway. Common wildlife species using the salt marsh include shrews, bats, river otter and raccoons. A few species of reptiles use the high margin of the brackish marsh.

Fresh Emergent Wetland

This transitional habitat occurs between terrestrial and aquatic systems where water tables are near the surface or land is covered by shallow water. Grass-like plants, which emerge from the water, form a dense canopy in this type of habitat. Fresh emergent wetland habitat is the same as the freshwater wetland community. Within the City of Hercules this habitat occurs on Parcels 1, 3, 4, 12, and 13.

This habitat is one of the most productive habitats for wildlife in that it offers water, food and cover for a variety of species. Northern harrier, black necked stilts, avocets, red-winged blackbirds and killdeer use these areas for foraging and nesting. Snowy egret, black crowned night heron and cinnamon teal also forage in this habitat. Mammals common in this habitat are

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meadow voles along the edges of the marsh area, raccoons foraging on eggs and invertebrates, striped skunk, and grey fox. Reptiles in this habitat include common garter snake and tree frogs and possibly red-legged frogs and tiger salamanders.

Willow Riparian

This habitat is a low shrubby tree structure that can cover an entire watercourse, with an impenetrable understory and includes fallen limbs and other debris. This habitat is the same as the Willow scrub community. Within the City of Hercules this habitat occurs along Refugio Creek east of I-80, with pockets occurring on Parcel 4 and along the Western Branch of Refugio Creek (Toups Engineering, 1972).

The willow riparian habitat attracts bird species that hover while catching insects, such as warbling vireo, and black phoebe. Other species such as mallards and snowy egrets use the shallow quiet waters of the river or stream to forage for vegetation and small fish. The American crow is found in this habitat and others, feeding on insects, fruits, carrion, amphibians, and reptiles. Predators, such as sharp-shinned hawks and red-shouldered hawks, nest in the high canopy and feed on the smaller birds and amphibians. Omnivores, such as the raccoon and striped skunk, forage on invertebrate species, plant parts, amphibians and fruits. The striped skunk is found in moist habitats within the study area.

Coast Live Oak Riparian

This habitat is an open, low, evergreen forest. Found in canyon bottoms and the drier outer floodplains, the understory for this habitat is blackberry bushes and wild rose in the wetter areas and often grasses in the drier areas. Within the City of Hercules this habitat occurs along the southeastern portion of the City and on Parcel 1 (Toups Engineering, 1972).

As with other riparian habitats, coast live oak riparian provides water, foraging, nesting, cover, and migrating and dispersal corridors for a variety of wildlife species. These include insect eaters, such as ash-throated flycatcher, plain titmouse and dark-eyed junco, or foliage gleaners that feed on insects which live on plant leaves, such as Bewicks' wren. Bark gleaner species, such as scrub jay, Stellar's jay, and acorn woodpecker, feed on bark insects as well as acorns. California quail, and brown towhee are the ground foliage gleaners in this habitat. Red-shouldered hawks can be seen foraging on small mammals in the adjacent grassland from the protection of the coast live oak riparian forest. Cooper's hawks and sharp-shinned hawks (see

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Special Status Species discussion below) are often associated with this habitat hunting small birds. Mammals such as grey squirrel forage and nest in the canopy of the trees while long-tailed weasels hunt for shrews and meadow voles on the ground. Larger mammals, such as mule deer, utilize the wet understory of this community, i.e. poison oak and blackberry bushes, in the form of shelter and food from the berries. Amphibians, such as Pacific slender salamander, rough-skinned newt and ensatina, can be found underneath the cover of fallen leaf litter and bark.

Eucalyptus Groves

This community is usually monotypic, with only one species providing canopy and very little undergrowth. Structurally, the eucalyptus supports a dense canopy. Within Hercules lands this community occurs on the west side of I-80 and along parts of the East Branch of Refugio Creek.

These forests offer perching and roosting sites for a variety of avian species, with some raptors (birds of prey) nesting in eucalyptus. The lack of understory growth does not provide much habitat for insects and, therefore, reptiles that prey upon them, nor for mammals, except for cover and resting areas.

The monarch butterfly will use the eucalyptus forests for cover and thermal regulation during the winter months. Raptors will use these forests for perching and roosting at night.

Non-Native Grassland

This habitat is based largely on cattle grazing which opens up the land to non-native grasses, annual grasses that grow during the winter and spring and die during the summer. Annual grassland now supports wildlife species that were once found in native grasslands. Within the City of Hercules this habitat occurs in most areas that are undeveloped (Toups Engineering, 1972).

Grassland habitat attracts seed eaters as well as insect eaters. California quail, mourning dove, and meadowlarks are a few seed eaters that use grasslands for nesting. Insect eaters such as scrub jays, barn swallows, and mockingbirds use the habitat for foraging only. Mammals such as the California vole, deer mouse, broad-footed mole, and black-tailed jackrabbit forage and nest within the grassland. Mule deer will use grassland for grazing and for nesting at night. Small rodents attract raptors such as red-tailed hawks and red-shouldered hawks. Southern alligator

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lizard and Pacific slender salamander use the grassland for invertebrates found within and underneath fallen logs.

Disturbed Lands

Residential parks and disturbed areas provide little habitat for wildlife except for those species adapted to human habitation, such as starlings, golden crowned sparrows, and rock pigeons. These areas do not provide habitat for the larger mammalian species nor for predators, except as possible movement corridors. This habitat occurs in developed and/or partially developed areas.

Regulatory Framework and Local Policies

Wetland Protection

Section 404 of the Federal Clean Water Act regulates discharge of fill material into "waters of the United States," which include wetlands, and, in some cases, even man-made channels. The U.S. Army Corps of Engineers (Corps) must issue a permit for any project which proposes filling of more than ten acres of wetlands. Riparian habitats are generally not subject to Section 404 jurisdiction, unless these areas are within the "ordinary high water mark" of a stream or channel or otherwise meet the Corps' wetland criteria. For filling of less than one acre, provided the conditions of Nationwide Permit #26 are met, no formal notification is required and a Nationwide Permit may be granted. For filling between one and ten acres of wetlands, the Corps can exercise discretion as to whether to process an Individual Permit or allow fill to proceed under a Nationwide Permit. However, a Section 401 certification (or waiver of such certification) by the California Regional Water Quality Control Board is required in any case.

In addition to the Corps' regulatory authority over "waters of the United States," the California Department of Fish and Game has authority to oversee work in streams pursuant to Fish and Game Code Sec. 1601-1603. A landowner or agency proposing to significantly alter the natural flow of a stream, significantly change its bed or bank, including bridging, or to use any material from the streambed, must enter into a "Streambed Alteration Agreement" with the CDFG. The Department, while permitted to impose reasonable conditions on the agreement, may not decline to enter into an agreement. Currently, all agreements must comply with the CDFG wetland policy of "no net loss" of wetlands (CDFG Wetlands Resource Policy 1987).

The San Francisco Bay Conservation and Development Commission (BCDC) has jurisdiction over the tidelands and shoreline area of the study area. Specifically, BCDC has shoreline jurisdiction 100 feet inland of the high tide line, estimated to be 6.2 feet NGVD¹ at the site, and Bay jurisdiction over the adjacent Bay waters and tidelands.² In Hercules, the BCDC has authority over the wetland areas around Hercules Point and over the tidal mudflats up to the railroad grade. Permits issued by BCDC are generally for water-related projects that propose minimum fill and maximum feasible public access. BCDC permit applications are also reviewed by the CDFG and other agencies.

Special Status Species

Special status species are defined for the purpose of this document to include species in the following categories, including those considered to meet CEQA *Guidelines* Section 15380 criteria as rare, threatened or endangered and those of other public concern:

Rare, Threatened, or Endangered Species (Section 15380 criteria)

- Plants that are listed or proposed for listing as rare, threatened, or endangered under the California Endangered Species Act or federal Endangered Species Act;
- Animals that are listed or proposed for listing as threatened or endangered under the California Endangered Species Act or federal Endangered Species Act;
- Plants or animals that are Candidates (Category 1 or 2) for possible future listing as threatened or endangered under the federal Endangered Species Act;
- Animals designated by the CDFG as "species of special concern"; and
- Animals that have been designated as "Protected" or "Fully Protected" by the federal government under law (e.g., Bald Eagle Protection Act).

Special Concern (not meeting Section 15380 criteria)

The following categories do not meet the Section 15380 criteria, and impacts on these species are not considered by the City to be significant under CEQA. These categories are discussed for the reader's information.

¹ National Geodetic Vertical Datum, a fixed plane of geographical reference (not equal to mean sea level).

² A recent California Court of Appeal decision (Littoral Development Co. v. San Francisco Bay Conservation and Development Commission, 24 Cal. App. 4th, 1050) has affected BCDC jurisdiction. The Court ruled that BCDC jurisdiction is generally limited to 100 feet landward from the mean high tide line, rather than from the line of "highest" high tide, except in marsh areas, where the jurisdiction extends to five feet above mean sea level.

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- Plants included on lists 1A, 1B, and 2 of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (Smith and Berg, 1988). CDFG recognizes that Lists 1A, 1B, and 2 of the CNPS inventory contain plants that, in the majority of cases, would qualify for state listing, and CDFG requests their inclusion in EIRs as necessary;
- Plants included on lists 3 and 4 of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (Smith and Berg, 1988). Plants occurring on CNPS Lists 3 and 4 are "plants about which more information is needed," and "plants of limited distribution," respectively (Smith and Berg, 1988). These plants may be included as special-status species on the basis of local significance or recent biological information;
- Plants or animals which have been identified as being of local or regional interest.

Local Policies

The proposed Land Use Element Update includes the following policies regarding the protection and enhancement of significant environmental attributes and features:

- Design of the flood control improvements along Refugio Creek should be done in a manner to function as a transition area between land uses. (Policy 13B)
- Establish strong and continuous system of trail links between the hills in the southeastern end of Refugio Valley and San Pablo Bay. (Program 14A.1)
- Establish a trail linkage between Pinole and Rodeo as part of the regional bay access trail, without encroaching upon private property or bluffs within the industrial area. (Program 14A.2)

The Hercules General Plan Open Space/Conservation Element contains several statements related to open space and habitat conservation:

- Incorporate conservation areas such as drainage courses, areas of natural vegetation and baylands into the open space system. (Objective V.C.1.c)
- Provide for the linkage of public and private open space throughout the community. (Objective V.C.1.d)
- The oak groves in canyon bottoms and on the sides hills will be preserved in their natural state where possible. Special care should be taken in construction operations to minimize damage to this valuable natural resource. (Proposal V.C.3.A.3)
- Greenways are mostly grass covered hilltops and slopes interspersed with residential areas in the easterly portion of the city. As much as practical of this grassland within the public open spaces should be preserved in its natural state because of its value as habitat for many species of raptors. (Proposal V.C.3.A.5)

Description of Special Status Species

A list of special status plant and animal species known to occur within the general project region, and potentially occurring on the parcels in the Study Area was compiled, on the basis of: analysis of previous studies conducted within the project area concerning special status plant and animal species' presence; consultation with the Department of Fish and Game's California Natural Diversity Data Base (CNDDDB, 1993), and the CDFG; review of pertinent scientific literature about the sensitive species of concern (Munz and Keck, 1970; Jepson, 1993); review of the most recent Notice of Review for federally listed and candidate plants and animals (U.S. Fish and Wildlife Service [USFWS], 1994); review of the CDFG's most recent list of special animals and plants, which also includes federally listed and candidate plants (CDFG, 1993); and review of CNPS literature (Smith and Berg, 1988).

The CNDDDB includes all species that have been observed or studied within a certain United States Geological Survey map quadrant and from species identified by the U.S. Fish and Wildlife Service as potentially present in Contra Costa County.³ The list therefore covers a larger geographic area than the City of Hercules, and a substantially larger area than the Land Use and Circulation Elements Update study area. The dates of these findings range from 1973 to 1992. Because certain species have not been specifically surveyed for or reported on the CNDDDB in this specific geographical area, this list, therefore, is not a definitive list of special status species potentially occurring within the boundaries of the study area. Additional species not included in the CNDDDB have been included because of the existence of suitable habitat within the study area.

For each of the sensitive plant and animal species, habitat requirements were assessed and compared to the habitats present within the study area. Factors such as on-site habitat quality and known geographic distribution of individual species were also considered in evaluating the likelihood of sensitive species' occurrence. Based on the results of that analysis, one special status plant species and twelve special status animal species were identified (refer to Table IV.D.2). Of these 13 species, 12 have the potential to occur within the project sites. These include Santa Cruz tarweed, monarch butterfly, Ricksecker's water scavenger beetle, California red-legged frog, northwestern pond turtle, southwestern pond turtle, ferruginous hawk, black-shouldered kite, California horned lark, saltmarsh common yellowthroat, loggerhead shrike, and Pacific western big-eared bat. The delta smelt occurs in San Pablo Bay, adjacent to the study

³ USGS map quadrants reviewed include Benicia, Briones Valley, Oakland East, Mare Island, and Richmond.

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TABLE IV.D.2: SPECIAL STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE HERCULES LAND USE AND CIRCULATION ELEMENTS UPDATE STUDY AREA

Common name (<i>Scientific Name</i>)	Status /a/	Habitat Occurrence	Possibility of Occurrence
Plants			
Large-flowered fiddleneck <i>Amsinckia grandiflora</i>	FE/SE	valley and foothill grassland	habitat not present in project area
Alameda manzanita <i>Arctostaphylos pallida</i>	FC1/SE	sandy or rocky ridges of chaparral below 2,200 feet in elevation	habitat not present in project area
Suisun aster <i>Aster chilensis var. lentus</i>	FC2	brackish water marshes	habitat not present in project area
Heartscale <i>Atriplex cordulata</i>	FC2	alkali sink and seasonal wetlands	habitat not present in project area
Valley spearscale <i>Atriplex joaquiniana</i>	FC2	alkali sink and seasonal wetlands	habitat not present in project area
Soft bird's-beak <i>Cordylanthus mollis</i> <i>ssp. mollis</i>	FC1/SR	salt marshes with heavy vegetation growth	habitat not present in project area
Mt. Diablo bird's-beak <i>Cordylanthus nidularis</i>	FC1/SR	serpentine chaparral	habitat not present in project area
Recurved larkspur <i>Delphinium recurvatum</i>	FC2	alkali sink and alkaline valley and foothill grasslands	habitat not present in project area
Interior California larkspur <i>Delphinium californicum</i> <i>ssp. interius</i>	FC2	wet places with cismontane woodlands	habitat not present in project area
Western leatherwood <i>Dirca occidentalis</i>	CNPS 1B	wet to moist slopes below 1500 feet	habitat not present in project area
Contra Costa wallflower <i>Erysimum capitatum</i> <i>var. angustatum</i>	FE/SE	inland dunes	habitat not present in project area
Diamond-petaled poppy <i>Eschscholzia rhombipetala</i>	FC2	valley foothill grasslands	habitat not present in project area
Fragrant fritillary <i>Fritillaria liliacea</i>	FC2	clay soils in grasslands and oak woodlands	habitat not present in project area
Diablo rock-rose <i>Helianthella castanea</i>	FC2	rocky sites of chaparral-oak woodland ecotone between 500 and 4,000 feet elev.	habitat not present in project area
Brewer's dwarf-flax <i>Hesperolinon breweri</i>	FC2	grassy slopes underlain by serpentine	habitat not present in project area
Santa Cruz tarweed <i>Holocarpha macradenia</i>	FC1/SE	heavy soils in grasslands	potential habitat in open grasslands

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TABLE IV.D.2: SPECIAL STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE HERCULES LAND USE AND CIRCULATION ELEMENTS UPDATE STUDY AREA (cont'd.)

Common name (<i>Scientific Name</i>)	Status /a/	Habitat Occurrence	Possibility of Occurrence
Northern California black walnut <i>Juglans californica</i> var. <i>hindsii</i>	FC2	remaining native stands are in Walnut Creek and Napa	habitat not present in project area
Contra Costa goldfields <i>Lasthenia conjugens</i>	FPE	alkaline grasslands and vernal pools	habitat not present in project area
Delta tule-pea <i>Lathyrus jepsonii</i> ssp. <i>jepsonii</i>	FC2	brackish water marshes	habitat not present in project area
Mason's lilaeopsis <i>Lilaeopsis masonii</i>	FC2/SR	riparian tidal zones in muddy or silty soil	habitat not present in project area
Antioch dunes evening-primrose <i>Oenothera deltoide</i> ssp. <i>howellii</i>	FE/SE	sandy banks of the Sacramento/San Joaquin River	habitat not present in project area
Mt Diablo phacelia <i>Phacelia phacelioides</i>	FC2	rocky chaparral and cismontane woodland	habitat not present in project area
Rock sanicle <i>Sanicula saxatilis</i>	FC2/SR	chaparral and oak woodland	habitat not present in project area
California sea blite <i>Sueda californica</i>	FPE	coastal salt marsh	habitat not present in project area
Uncommon jewelflower <i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	FC1	serpentine grasslands	habitat not present in project area
Mt. Diablo jewelflower <i>Streptanthus hispidus</i>	FC2	rock outcrops within chaparral	habitat not present in project area
Fish			
Delta smelt <i>Hypomesus transpacificus</i>	FE/ST	seasonally in San Pablo Bay school in large numbers	potential habitat present in San Pablo Bay
Winter run chinook <i>Onchorhynchus tshawytscha</i>	FE/SE	move up Sacramento River in Dec. through Feb., spawning areas are gravel riffles	spawning habitat not present in project area
Sacramento splittail <i>Pogonichthys macrolepidotus</i>	FPT/CSC	delta region and lower Sacramento River, spawn in deadened sloughs on beds of aquatic plants	habitat not present in project area
Invertebrates			
Longhorn fairy shrimp <i>Branchinecta longiantenna</i>	FE	vernal pools and alkali sinks	habitat not present in project area
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT	freshwater vernal pools	habitat not present in project area
California linderiella <i>Linderiella occidentalis</i>	FE	freshwater vernal pools	habitat not present in project area

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TABLE IV.D.2: SPECIAL STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE HERCULES LAND USE AND CIRCULATION ELEMENTS UPDATE STUDY AREA (cont'd.)

Common name (<i>Scientific Name</i>)	Status /a/	Habitat Occurrence	Possibility of Occurrence
Insects			
Langes metalmark butterfly <i>Apodemia mormo langei</i>	FE		habitat not present in project area
Monarch butterfly <i>Danaus plexippus</i>	S*	winter roosts along the coast of California in wind protected tree groves	potential habitat in groves
Bay checkerspot butterfly <i>Euphydryas editha bayensis</i>	FT	serpentine grasslands	habitat not present in project area
Ricksecker's water scavenger beetle <i>Hydrochara rickseckeri</i>	FC2	permanent and semi-permanent freshwater sources	potential habitat occurs in the lowlands near the bay
Curved-foot hygrotus diving beetle <i>Hygrotus curvipes</i>	FC2	alkali sinks	habitat not present in project area
Amphibian			
California tiger salamander <i>Ambystoma californiense</i>	FC1/CSC	breeds in vernal pools and seasonal ponds and aestivates in ground squirrel burrows	habitat not present in project area
California red-legged frog <i>Rana aurora draytonii</i>	FPE/CSC	inhabits perennial ponds devoid of bullfrog	potential habitat present in lowland streams
Foothill yellow-legged frog <i>Rana boylei</i>	FC2/CSC	inhabits perennial streams devoid of bullfrog	habitat not present in project area
Reptiles			
Northwestern pond turtle <i>Clemmys marmorata marmorata</i>	FC2/CSC	inhabits perennial streams with sandy banks for laying eggs	potential habitat present in lowland streams
Southwestern pond turtle <i>Clemmys marmorata pallida</i>	FC2/CSC	inhabits perennial streams with sandy banks for laying eggs	potential habitat present in lowland streams
Alameda whipsnake <i>Masticophis lateralis euryxanthus</i>	FPE/ST	inhabits south facing coastal scrub habitats with intermittent streams	habitat not present in project area
California coast horned lizard <i>Phrynosoma coronatum frontale</i>	CSC	coastal scrub/chaparral with fine loose soil with abundant insects	habitat not present in project area
Giant garter snake <i>Thamnophis gigas</i>	FT/ST	inhabits permanent freshwater marshes, streams and ponds	habitat not present in project area
Birds			
Tricolored blackbird <i>Agelaius tricolor</i>	FC2/CSC	nests in dense vegetation adjacent to freshwater in large colonies	habitat not present in project area

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TABLE IV.D.2: SPECIAL STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE HERCULES LAND USE AND CIRCULATION ELEMENTS UPDATE STUDY AREA (cont'd.)

Common name (<i>Scientific Name</i>)	Status /a/	Habitat Occurrence	Possibility of Occurrence
Aleutian Canada goose <i>Branta canadensis leucopareia</i>	FT	winters on lakes and ponds free of predators with levees to sleep on at night	habitat not present in project area
Ferruginous hawk <i>Buteo regalis</i>	FC2/CSC	winters in open grassland, usually agricultural fields	potential habitat in lowlands near the bay
Mountain plover <i>Charadrius montanus</i>	FC2/CSC	moderate elevations on open plains	habitat not present in project area
Black-shouldered kite <i>Elanus caeruleus</i>	S*	forages in open grasslands, along streams and wet meadows	potential habitat in lowlands near the bay
California horned lark <i>Eremophila alpestris actia</i>	FC2/CSC	nests in open, sparsely vegetated grasslands	nesting habitat in grazed areas
Peregrine falcon <i>Falco peregrinus anatum</i>	FE/SE	nests on cliffs, winters in California, Mexico and South America	nesting habitat not present
Saltmarsh common yellowthroat <i>Geothlypis trichas sinuosa</i>	FC2/CSC	nests in freshwater marshes containing trees and winters in salt marshes	habitat present in lowlands of the project area
American bald eagle <i>Haliaeetus leucocephalus</i>	FE/SE	winter roosts on dead snags adjacent to large bodies of water	habitat not present in project area
Loggerhead shrike <i>Lanius ludovicianus</i>	FC2/CSC	nests in open fields and woodlands	potential habitat in the lowlands
California black rail <i>Laterallus jamaicensis coturniculus</i>	FC2/ST	salt, brackish and freshwater marshes with heavy vegetation growth bordering larger bays	habitat not present in project area
Suisun song sparrow <i>Melospiza melodia maxillaris</i>	FC1/CSC	requires dense willow riparian habitat and emergent wetlands	habitat not present in project area
Alameda song sparrow <i>Melospiza melodia pusillula</i>	FC2/CSC	requires dense willow riparian habitat and emergent wetlands (South Bay)	habitat not present in project area
San Pablo song sparrow <i>Melospiza melodia samuelis</i>	FC2/CSC	requires dense willow riparian habitat and emergent wetlands	habitat not present in project area
California brown pelican <i>Pelecanus occidentalis californicus</i>	FE/SE	night-time roosts on levees along bays	habitat not present in project area
California clapper rail <i>Rallus longirostris obsoletus</i>	FE/SE	salt water marshes containing tidal sloughs bordering the S.F. Bay.	habitat not present in project area
California least tern <i>Sterna albifrons browni</i>	FE/SE	nests in sandy soils and feeds in the bay	habitat not present in project area

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TABLE IV.D.2: SPECIAL STATUS SPECIES POTENTIALLY OCCURRING WITHIN THE HERCULES LAND USE AND CIRCULATION ELEMENTS UPDATE STUDY AREA (cont'd.)

Common name (<i>Scientific Name</i>)	Status /a/	Habitat Occurrence	Possibility of Occurrence
Mammals			
Greater western mastiff bat <i>Eumops perotis californicus</i>	FC2/CSC	rugged, rocky areas with cervices in arid areas	habitat not present in project area
San Pablo vole <i>Microtus californicus sanpabloensis</i>	FC2/CSC	burrows in soft soils adjacent to salt marshes in northern S.F. Bay	habitat not present in project area
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	FC2/CSC	feeds mainly on woody plants in forests of moderate canopy and understory	habitat not present in project area
San Joaquin Valley woodrat <i>Neotoma fuscipes riparia</i>	FC2/CSC	feeds mainly on woody plants in forests of moderate canopy and understory	habitat not present in project area
Pacific western big-eared bat <i>Plecotus townsendii townsendii</i>	FC2/CSC	inhabits mesic habitats, roosting in nearby caves, mines, tunnels, or buildings	potential habitat in old buildings
Salt marsh harvest mouse <i>Reithrodontomys raviventris</i>	FE/SE	salt marshes along San Francisco Bay and tributaries with cover above mean high tide line	habitat not present in project area
Suisun shrew <i>Sorex ornatus sinosus</i>	FC1/CSC	tidal marshes within San Pablo and Suisun Bays, with cover above mean high tide line	habitat not present in project area
Saltmarsh wandering shrew <i>Sorex vagrans halicoetes</i>	FC1/CSC	tidal salt marsh along the S.F. Bay	habitat not present in project area
Riparian brush rabbit <i>Sylvilagus bachmani riparius</i>	FC1/SE	Cowell State Park in San Joaquin County	habitat not present in project area
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	FE/ST	open grasslands with other fossorial mammals	habitat not present in project area

/a/ STATUS:

U.S. Fish & Wildlife Service categories

FPE = Federal Proposed as Endangered

FE = Federal Endangered

FT = Federal Threatened

FC = Federal Candidate

FC1 = Listing may be appropriate, data on file.

FC2 = Listing may be appropriate, supporting data not on file.

** = Listing as threatened or endangered pending.

California Department of Fish and Game categories

SE = State Endangered

ST = State Threatened

CSC = California Species of Concern

S* = State Designated Special Animal

SR = California Rare

California Native Plant Society (CNPS) Lists

List 1A = Plants presumed extinct in California

List 1B = Plants rare and endangered in California & elsewhere

List 2 = Plants endangered in California, more common elsewhere

List 3 = Plants about which more information is needed

List 4 = Plants of limited distribution (a "watch list")

SOURCE: SOURCE: ESA 1995, CDFG, 1993, USFWS 1992

area, and would not be directly affected by the project. The following provides a brief summary description of these special status species, including distributional, morphological (form and structure), and habitat information on each.

The following species descriptions are of species potentially occurring within the study area, based on available habitat, but for which no studies have been conducted. As discussed in the mitigation measures in this section, these species should be surveyed for prior to construction if their required habitat is on site.

Plants

No special status plant species have been reported within the study area. Due to the disturbance on the various parcels and lack of appropriate habitats, there is only one special status plant species potentially occurring within the project area.

Santa Cruz tarweed (*Holocarpha macradenia*), listed by the state as Endangered and a federal Category 1 species, proposed for listing as Endangered, Threatened or Rare, is a rigid, glandular annual ranging from 1 to 5 decimeters in height. Because it occurs in colonies, it is easily observed, especially when it produces its yellow flowers between June and October. It inhabits grassy flats underlain by heavy soils along the coast, and has been observed in Alameda, Contra Costa, Marin, Santa Cruz (CNPS, 1977d), and Monterey Counties (CNPS, 1988c). Although a population of this species was recently discovered near Pinole in Contra Costa County (CNDDDB, 1989), this species has not been surveyed for in the study area.

Fish

Delta smelt (*Hypomesus transpacificus*), a federally Endangered and a California threatened species, is found in the greatest abundance at salinities near 2 ppt (Herbold, 1994). This species occurs in and around Suisun Bay, with numbers showing greater in shallow waters. Delta smelt surged to the highest numbers in 1993, after a low for 13 years. There is some evidence that this increase is in part due to the number of days in April when salinities of 2 ppt are between Middle Ground and Roe Island (Herbold, 1994). Nursery habitat may be needed throughout February to June, but peaks occur in April. This species is not expected to spawn in San Pablo Bay due to the low salinities but will use the bay for seasonal migration.

Invertebrates

Ricksecker's water scavenger beetle (*Hydrochara rickseckeri*) is a federal Category 2 species, candidate for listing as Endangered or Threatened. This beetle inhabits permanent or semi-permanent water sources which are required for it to survive and reproduce. Specific details of the life history of this species are unknown. The beetle's range is thought to extend generally around the Bay Area, with collections having been made in Santa Rosa, Alameda, and Livermore (Arnold, pers. comm.). This species has been found from January through July in areas capable of ponding water, including freshwater seeps, springs, farm ponds, and slow-moving streams. Related species in the genus are aquatic scavengers as adults, while larvae feed as predators on soft bodied aquatic invertebrates (Arnold, pers. comm.). Larvae are usually found in relatively calm, shallow water of ponds, streams, marshes or lakes. Potential habitat for this species occurs on Parcels 1, 3 and 4.

Monarch butterfly (*Danaus plexippus*), although state and federally unlisted, it may be designated the National Insect by U.S. Congress in the near future (Arnold, 1993).

Overwintering sites in California occur within a mile of the coast, generally consisting of wooded trees of mixed height and trunk diameter, as well as understory brush. Trees such as blue gum (*Eucalyptus globulus*), Monterey pine (*Pinus radiata*) and Monterey cypress (*Cupressus macrocarpa*) are most often used as roosts, as well as other native and non-native species in a large enough grove to provide thermal regulation and cover from predators. Nearby winter blooming nectar plants and fresh water are also important factors in determining winter roosting areas. The CNDDDB (1993) has reported several wintering areas along San Pablo Bay. Within the project area the eucalyptus groves offer habitat for this species.

Amphibians

California red-legged frog (*Rana aurora draytonii*) is federally proposed Endangered and a California Species of Concern. This species is primarily a pond frog, but will also inhabit slow moving streams or pools in intermittent streams. When inhabiting ponds, which are usually permanent and at least 3 feet in depth, emergent vegetation, such as cattails, and shoreline cover are often required for cover from predators and for depositing eggs (Stebbins, 1985; Mayer and Laudenslayer, 1988). Its range extends from the western slope of the Cascade-Sierran mountain system, to the North and South Coast Ranges, and the Transverse Range. This species is active year long along the coast but will aestivate (summer dormancy) from late summer to early winter inland (Mayer and Laudenslayer, 1988). The breeding period is 1-2 weeks from January through

to April, with the larvae maturing in 11 to 20 weeks. Adult bullfrog (*Rana catesbiana*) were introduced into California from their native eastern states at the turn of the century (Mayer and Laudenslayer, 1988). It is well known that bullfrogs prey on, compete for food and space with native amphibians (Leidy, pers. comm., 1993; Mayer and Laudenslayer, 1988). In streams in other counties bullfrogs have eliminated red-legged frogs from the lower, gentler stream gradients, and as a result red-legged frogs have been seen in rocky streams, an unnatural habitat for them, with foothill yellow-legged frogs (Leidy, 1993). Potential habitat for this species occurs on Parcels 1, 3 and 4.

Reptiles

Northwestern Pond Turtle (*Clemmys marmorata marmorata*), a federal Category 2 species, candidate for listing as threatened or endangered, and a California species of concern, is a thoroughly aquatic turtle, found in permanent ponds, rivers, streams, and irrigation ditches that typically have rocky or muddy bottoms and are overgrown with vegetation. Basking areas are required by this species and include partially submerged logs, rocks, mats of vegetation or open mud banks. Eggs are laid in April -August. Habitat destruction and degradation are the primary threats to this species. Potential habitat for this species occurs on Parcels 1, 3 and 4.

Southwestern Pond Turtle (*Clemmys marmorata pallida*), a federal Category 2 species, candidate for listing as threatened or endangered, and a California species of concern, is a thoroughly aquatic turtle, found in permanent ponds, rivers, streams, and irrigation ditches that typically have rocky or muddy bottoms and are overgrown with vegetation. Basking areas are required by this species and include partially submerged logs, rocks, mats of vegetation or open mud banks. Eggs are laid in April -August. Habitat destruction and degradation are the primary threats to this species. Potential habitat for this species occurs on Parcels 1, 3 and 4.

Birds

Ferruginous hawk (*Buteo regalis*), federally listed as Category 2, candidate for listing as endangered or threatened, and a California species of concern, like other raptors and birds in general, falls under California Fish & Game Code Sec. 3503 and 3503.5, which prohibits the taking or destroying of nest or eggs of any bird and prohibits the taking or destroying of any bird or nest in the order of Falconiformes (falcons, kites, and hawks) and Strigiformes (owls). This species occurs in the Central Valley during the winter, arriving in September and leaving in mid-April, and frequenting open grassland areas, sagebrush flats, desert scrub, and fringes of pinion-

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juniper habitats. Ferruginous hawks will roost in open areas, often using utility poles. The main threats to this species are conversion to agriculture and human harassment. Potential wintering foraging habitat occurs on Parcels 1, 3 and 4.

Black-shouldered kite (*Elanus caeruleus*), a fully protected species of California under CDFG Code 3511, is declining in numbers in California. This species is a resident of California, but shifts about seasonally within the state in accordance with food supplies. Prior to 1895 this species was common to widespread in valley and lower foothill territory, but is now rare in many sections of the state (Grinnell, 1944). This species forages in wetlands and open brushlands, usually near water and streams. Oak woodlands, valley oak or live oak, or trees along marsh edges are used for nesting sites. The nest made by this species is a frail platform of sticks, leaves, weed stalks, and similar materials located in tree or bush. A combination of habitats is essential, including open grasslands, meadows or marshes for foraging, and isolated dense-topped trees for perching and nesting. The destruction of wetlands is the primary threat to this species. Within the study area nesting and foraging habitat for this species occurs on Parcels 1, 3 and 4.

California horned lark (*Eremophila alpestris actia*), federally listed as Category 2, candidate for listing as Endangered or Threatened, and a California Species of Concern, is a year-long resident in most of California, except in the Sierras during winter. This race of horned lark is usually found in open habitat, such as grassland and agricultural areas, where trees and shrubs are absent. This species has been observed from sea level to above treeline in various habitats, such as sparse grasslands, deserts and alpine dwarf-shrub habitat. It uses grasses, shrubs, forbs, rocks, litter, clods of soil, and other surface irregularities for cover from predators. Potential foraging and nesting habitat could occur on Parcels 1, 3, and 4.

Saltmarsh yellowthroat (*Geothlypis trichas sinosa*), federally listed as Category 2, candidate for listing as Endangered or Threatened and a California Species of Concern, is a resident of the San Francisco Bay marshes, inhabiting both salt and freshwater marshes in the summer (Grinnell, 1944). Salt marshes are inhabited during the fall and winter. Tall grasses, tule patches and willow thickets are used during the breeding season for nesting, where the insectivorous bird gleans grasshoppers, caterpillars, and spiders off the branches and grasses. Both foraging and nesting grounds are within 10 feet of the ground. Grinnell noted nesting occurrences around the sloughs of San Pablo and San Francisco Bays from southern Sonoma County down to San Jose and winter occurrences in the coastal marshes from the San Francisco

Bay region down to San Diego. Loss of breeding and wintering habitat threatens this species. Within the project area potential nesting and foraging habitat for this species occurs on Parcels 1, 3 and 4.

Loggerhead shrike (*Lanius ludovicianus*), federally listed as Category 2, candidate for listing as Endangered or Threatened and a California Species of Concern, is common throughout California in the lowlands and the foothills. This species occurs in open habitats, such as grasslands or, occasionally, agricultural fields, using shrubs, trees, posts, fences, and utility lines for perching surfaces. Nests are usually built in trees and shrubs; however, manmade structures are also used. The local nesting season spans March to July. Habitats with little to no human disturbance are preferred, such as open canopied valley, valley foothill hardwood, valley foothill hardwood conifer, and valley foothill riparian habitats. Edges of denser habitats are sometimes used. This species nests on stable branches in densely foliated tree or shrubs. The nesting season ranges from March through August (CDFG, 1990). Insecticides and habitat loss have caused population decreases throughout California.

Mammals

Pacific (Townsend's) western big-eared bat (*Plecotus townsendii townsendii*), federally listed as Category 2, candidate for listing as Endangered or Threatened and a California Species of Concern, occurs throughout California. Inhabiting mesic habitats, Pacific western big-eared bat will roost in caves, mines, tunnels, or buildings. This species forages along habitat edges, gleaning insects from bushes and trees. Once abundant throughout California, Pacific western big-eared bat has decreased in population numbers due to sensitivity to human disturbance of roosting sites. Nursery colonies start around March-April with young being born around May-June (Jameson & Peeters, 1988).

IMPACTS AND MITIGATION MEASURES

Significance Criteria

The CEQA *Guidelines* Section 15065(a) specifies that a lead agency shall find that a project may have a significant effect on the environment when the project has the potential to "...substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number

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or a rare or endangered species...." The *Guidelines* (Appendix G) provide examples of impacts that normally are considered significant, including those that would:

- "substantially affect a rare or endangered species of animal or plant or the habitat of the species";
- "interfere substantially with the movement of any resident or migratory fish or wildlife species"; or
- "substantially diminish habitat for fish, wildlife or plants."

The *Guidelines* (Section 15380) further define "rare or endangered species" as those species officially listed as threatened, endangered, or rare under federal or California law. In addition, the *Guidelines* provide that plant or animal species may be treated as "rare or endangered" even if not on one of the official lists if:

- its survival and reproduction in the wild are in immediate jeopardy,
- if the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens, or
- if it is likely to become endangered in the foreseeable future and may be categorized as "threatened" under federal law.

However, recent case law (*Sierra Club vs. City of Gilroy*, 1990 222 Cal. App. 3d.30, 47) may be interpreted as providing discretion to the lead agency as to whether a species is to be considered "rare or endangered" despite meeting one or more of these criteria.

Given these standards, a project would be considered to have a significant adverse impact on biological resources if it would result in substantial disruption to, or destruction of, any special status species, their habitat, or breeding grounds. As discussed previously, special status species include those plants and animals that are State and/or federally listed as endangered or threatened or are Category 1 or 2 candidates for federal listing; animals considered Species of Special Concern as designated by the CDFG; or animals that are federally designated as "protected" or "fully protected."

A project would also be considered to have a significant impact if it would result in a substantial loss of important plant or animal species; would cause a change in species composition, abundance or diversity beyond that of normal variability; or would indirectly result in the

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measurable degradation of sensitive habitats (e.g., wetlands, riparian corridors, vernal pools, oak woodlands) such as through the introduction of erosion or runoff materials.

Impacts to a particular biological feature would also be considered significant if the resource is either identified by the City of Hercules (such as creeks, sensitive habitats, and habitats of rare or endangered species) and/or subject to U.S. Army Corps of Engineers permit requirements under Section 404 of the Federal Clean Water Act. These resources typically cannot be successfully re-created and/or methods of restoration are still experimental.

Impacts were generally considered not significant if the habitats and species affected are common and widespread in the region and the State. Examples include areas supporting landscaping. These areas can readily be enhanced or rehabilitated.

There are no natural communities within Parcels 8, B, D, E, H, or I. The majority of the species in and around these developed areas are non-native planted species with very little wildlife habitat value. Therefore, development of these parcels would not result in any significant biological impacts.

Development of Parcels 6 and 9 would minimally impact existing common wildlife habitat. Landscaped and disturbed areas provide little habitat for wildlife except for those species adapted to human habitation, such as starlings, golden crowned sparrows, mourning dove, rock pigeons and feral cats. These areas do not provide habitat for larger mammalian species nor for native predators, except as possible movement corridors. Therefore the impacts of development would not be significant.

Impact Biology-1: Introduction of invasive non-native species used in landscaping would be detrimental to the native habitats within the Hercules General Plan Update project area. This would be a significant impact.

French broom (*Cytisus monspessulanus*) and Spanish broom (*Cytisus scoparius*), invasive, non-native species, are often used in landscaping. The abundance of seeds allow them to "escape" landscaped areas into adjacent habitats where they establish, not having any natural predators, and out-compete native species for space and resources thus decreasing natural diversity of native plant species. This would be a significant impact.

Impact Biology-1: Mitigation Measures Proposed as Part of the Project

The following objectives or programs are contained in the proposed Land Use Element Update:

Objective 14: Protect and enhance significant environmental attributes and features.

Program 14A.3: Continue to improve and protect Refugio Creek as a major environmental amenity.

Impact Biology-1: Mitigation Measures identified in other *General Plan* Elements

None identified.

Impact Biology-1 : Mitigation Measures Identified in This EIR

The City shall condition approval of individual development proposals on the following implementation program:

Biology-1a: The City shall require that native plants from the local area be used in landscaping, and in areas with a lower water table, native drought tolerant species shall be used in landscaping.

Impact Biology-1: Significance After Mitigation

Less-than-significant.

Impact Biology-2. Seasonal freshwater wetlands would be directly affected (lost or damaged) by development within the Land Use Element Update study area. This would be a significant impact.

Seasonal freshwater wetlands adjacent to the western portion of Refugio Creek occur on Parcels 1, 3, 4, 12, and C. This community is of concern to the CDFG, USFWS and the Corps. The CDFG has ranked terrestrial vegetation communities, presenting an overall condition of the community within the state. Coastal and Valley freshwater marsh have an element ranking of S2.1, with 6 to 20 occurrences of the community within California, or 2,000 to 10,000 acres left, thus making this community threatened. Because of the high value of wetlands to migratory birds, and the decreasing acreage of wetlands within California, USFWS states that no net loss of

wetlands shall occur. The Corps has jurisdiction over waters of the United States, including those areas that are defined as wetlands.

Storm water flooding of Refugio Valley occurs during periods of heavy rainfall and runoff, coincident with high tides in Refugio Creek. Past planning studies including the City's Redevelopment Plan have included proposals to realign Refugio Creek to help control flood conditions.

A wetland delineation would be required along Refugio Creek and other drainages prior to any construction on Parcels 1, 3, 4, 12, and C to determine the extent of the Corps jurisdiction over the potential wetlands. A wetland delineation would determine if the wetlands meet the three parameters, vegetation, soils and hydrology, as set forth by Corps and USFWS.⁴

If the wetlands are found to meet all three parameters, as determined by the Corps and the USFWS, replacement would be required on a one-to-one ratio. A Section 404 Permit or a Nationwide Permit would be required prior to development of any parcels containing jurisdictional wetlands. CDFG may require a Streambed Alteration Agreement if the wetlands are adjacent to an intermittent or perennial stream or water course.

Impact Biology-2: Mitigation Measures Proposed as Part of the Project

The following program is contained in the proposed Land Use Element Update:

Program 14A.3: Continue to improve and protect Refugio Creek as a major environmental amenity.

Impact Biology-2: Mitigation Measures identified in other *General Plan* Elements

The following objectives or programs are contained in the Open Space/Conservation Element:

Objective V.C.1c. Incorporate conservation areas such as drainage courses, areas of natural vegetation and baylands into the open space system.

⁴ See Impact Wastewater-1, Section IV.F, for discussion of possible effects on wetlands at the Hercules Wastewater Treatment Plant, which is outside the study area.

Impact Biology-2: Mitigation Measures Identified in This EIR

The City shall add the following policies or implementation programs to the Land Use Element Update:

Biology 2a: The City shall require project proponents to design construction footprints to avoid any wetlands and place 100-foot buffer zones around the wetlands in the project area, or as determined by CDFG or the COE. If avoidance is not possible projects shall be redesigned so as to impact the least amount of wetlands. Any areas that are classified as wetlands and would be affected by project development shall be recreated either on or off site in accordance with CDFG and COE.

Biology 2b: Prior to construction in areas of wetlands, the City shall support CDFG and Corps permitting process. A project sponsor shall be required to obtain a Streambed Alteration Agreement from CDFG and/or a Section 404 Corps permit prior to any development within any wetland.

Biology 2c: If flood control improvements are required along Refugio Creek the City shall direct the Corps to create the flood control area wide enough to provide for establishment within the flood control area of native vegetation to provide for wildlife habitat. The City shall allow a transition area between proposed land uses and this natural community, as described in Program 13B of the proposed Land Use Element.

Impact Biology-2: Significance After Mitigation

Less-than-significant.

Impact Biology-3: Development of Parcel A would directly encroach upon the Refugio Creek riparian corridor. This would be a significant impact.

Parcel A contains a riparian corridor between the parcel site and Refugio Valley Road. This vegetation community would be affected during construction on this site because access from the main road would occur across the creek and would likely require the removal of trees along the corridor for the construction of an access bridge. Removal of trees along the riparian corridor would raise creek temperatures and could cause degradation of the creek and adverse impacts on wildlife. A project applicant would be required to obtain permits from CDFG (Streambed Alteration Agreement)and the Corps (Section 404 permit).

Impact Biology-3: Mitigation Measures Proposed as Part of the Project

The following objective and program are from the proposed Land Use Element:

Objective 14: Protect and enhance significant environmental attributes and features.

Program 14A.3: Continue to improve and protect Refugio Creek as a major environmental amenity.

Impact Biology-3: Mitigation Measures identified in other *General Plan* Elements

The following objective is from the Open Space/Conservation Element:

Open Space/Conservation Element Objective V.C.1c. Incorporate conservation areas such as drainage courses, areas of natural vegetation and baylands into the open space system.

Impact Biology-3: Mitigation Measures Identified in This EIR

The City shall add the following programs to the Land Use Element Update:

Biology-3a: Prior to construction in areas of riparian corridors or wetlands, the City shall support CDFG and Corps permitting process. A Streambed Alteration Agreement from CDFG and/or a Section 404 Corps permit shall be obtained by the project applicant prior to any development within any creek or discharge of fill into any creek.

Biology-3b: Design of building footprints along any riparian corridors shall be outside the 100-foot buffer zone (from the top of the bank, 50 feet on each side). Sensitive riparian habitats shall be marked by a qualified biologist to deter any destruction by equipment during construction.

Biology-3c: Development along any riparian corridor shall incorporate measures to avoid impacts during construction, including:

- i) Construction of any access bridge shall be limited to the bridge footprint area only.
- ii) Parking of large equipment shall be on the upland grassland area or on the paved street. Construction workers cars shall have designated parking areas.
- iii) Basins for oil leaks from the equipment shall be installed if equipment is parked on-site over night.

Impact Biology-3: Significance After Mitigation

Less-than-significant.

Impact Biology-4 : The proximity of development to riparian and wetland communities could cause degradation of these communities through introduction of urban pollutants in stormwater runoff. This would be a significant impact.

Runoff from impervious surfaces contaminated by oil, grease and debris could decrease water quality, and species diversity within the riparian and wetland habitats on Parcels 1, 3, 4, 11, 12, A, C, and F.

Impact Biology-4: Mitigation Measures Proposed as Part of the Project

Objective 14: Protect and enhance significant environmental attributes and features.

Program 14A.3: Continue to improve and protect Refugio Creek as a major environmental amenity.

Impact Biology-4: Mitigation Measures identified in other *General Plan* Elements

Growth Management Policy III.E.5: Meet federal NPDES [National Pollution Discharge Elimination System] requirements for stormwater runoff.

Impact Biology -4: Mitigation Measure Identified in This EIR

The City shall add the following policy to the Land Use Element Update:

Biology-4a: The City shall require project proponents to design facilities to prevent degradation of riparian and wetland communities from urban pollutants in storm runoff.

The City shall condition approval of individual development proposals on implementation of the following mitigation measures:

Biology-4b: To minimize pollution downstream from sedimentation, the City shall require installation of sedimentation and grease basins in the storm drain system in parking lots in accordance with NPDES regulations and shall require that property owners maintain the basins annually, or as required by NPDES regulations. Parking lots shall be swept periodically to decrease the amount of debris that could potentially contaminate the riparian or wetland habitat.

Impact Biology-4: Significance After Mitigation

Less-than-significant.

Impact Biology-5: Development on Parcels 1 and 2 under the updated Land Use Element could result in the disturbance of salt marsh zones along San Pablo Bay, due to the proximity of urbanization. This would be a significant impact.

Buildings and other development built close to the Bay could increase noise, light and glare, and public disturbance, and loss of adjacent open space would reduce the value of the habitat to wildlife. Increased disturbance from humans and domestic pets along a bay access trail (proposed Land Use Policy 14A.2) would disturb the salt marsh zone through harassment of wildlife, potential predation, and erosion of sensitive ecological habitat. Domestic dogs off-leash and off-road bicycling would disrupt feeding patterns of shorebirds in tidal salt marshes and mudflats. Because San Pablo Bay and the San Francisco Bay Area are part of the Pacific Flyway and development around the Bay has decreased available foraging areas, the remaining tidal salt marshes and mudflats have become increasingly important as feeding grounds for migrating shorebirds.

Impact Biology-5: Mitigation Measures Proposed as Part of the Project

The following objective is in the proposed Land Use Element Update:

Objective 14: Protect and enhance significant environmental attributes and features.

Impact Biology-5: Mitigation Measures identified in other *General Plan* Elements

The following objectives are contained in the Open Space/Conservation Element:

Open Space/Conservation Element Objective V.C.1.b: Establish a management plan for the conservation and enhancement of the natural amenities in the City.

Open Space/Conservation Element Objective V.C.1c. Incorporate conservation areas such as drainage courses, areas of natural vegetation and baylands into the open space system.

Impact Biology-5: Mitigation Measure Identified in this EIR

The City shall add the following policies and programs to the Land Use Element Update:

Biology-5a: The city shall review development proposals for consistency with minimizing impacts to salt marsh zones. The City shall incorporate the following policies and programs for development near San Pablo Bay:

IV. Environmental Setting, Impacts and Mitigation Measures

D. Vegetation and Wildlife

- Buildings shall be located on existing developed or graded areas, where practicable.
- The City shall work with CDFG, BCDC, East Bay Regional Park District, and the Corps to determine appropriate buffer zones along the Bay to protect tidal habitat when designing a bay access trail linkage between Pinole and Rodeo. Public access and pedestrian pathways shall be limited within the buffer zone, and when possible, located along the edges of the buffer zone. Bicycles shall be encouraged to stay on bike paths through the use of signage and fencing.
- The City shall require developers to provide signage and fencing to enforce leash laws around remaining areas of sensitive habitats such as salt marsh wetlands and mud flats.

Impact Biology-5 : Significance After Mitigation

Less-than-significant.

Impact Biology-6: Habitat for several special status plant and animal species would be affected by construction within development areas in the Study Area. This would be a significant impact.

Specifically, the eucalyptus groves provide wintering habitat for the monarch butterfly. Any ponding water provides habitat for Ricksecker's water scavenger beetle, California red-legged frog and, depending on the size, northwestern and southwestern pond turtle; and freshwater wetlands provide habitat for northwestern pond turtle, southwestern pond turtle, and saltmarsh yellowthroat. Raptors such as black-shouldered kite, and wintering ferruginous hawk forage in open grasslands, with kite nesting in trees adjacent to wet meadows along Refugio Creek. Open grasslands provide habitat for Santa Cruz tarweed, California horned lark and loggerhead shrike. Any building within the Study Area could provide habitat for Pacific western big-eared bat.

About 75 percent, or 194 acres, of the 251 acres encompassed by the Parcels 1, 3 and 4 would be developed for office use, research and development, commercial and residential uses, as well as the historic town center on Parcel 1. The remaining approximately 57 acres of creek corridor/open space would be available for raptor foraging.

Impact Biology-6: Mitigation Measures Proposed as Part of the Project

None identified.

Impact Biology-6: Mitigation Measures identified in other *General Plan* Elements

None identified.

Impact Biology-6: Mitigation Measures Identified in this EIR

The City shall add the following policies and programs to the Land Use Element Update:

Biology-6a: For projects not exempt from the California Environmental Quality Act, the City shall continue to utilize environmental review under CEQA to review development and for impacts on sensitive species and their habitat.

Biology-6b: The City shall require that development within the General Plan area incorporate features to preserve foraging habitat for wildlife.

Biology-6c: Areas that could provide habitat for sensitive species shall be surveyed by qualified biologists provided by project sponsors prior to project design. Surveys in sensitive areas would have to be conducted prior to any development. Sensitive areas within the study area includes eucalyptus groves, freshwater wetlands and adjacent trees, open grasslands, ponds and creeks, and buildings which are abandoned or slated for destruction. If any species is present, coordination with the CDFG will be required for mitigation of impacts and redesigning of the project footprint to avoid any sensitive species or sensitive habitat. If avoidance is unavailable coordination with the CDFG will be required for relocation of these species and for determining replacement of habitat.

- i) If monarch butterfly is present, eucalyptus groves within the development should be retained during the winter roosting season. Removal of eucalyptus trees, if undertaken, should occur from August through October, before the butterfly's winter roosting season and after raptor nesting,.
- ii) Surveys for Ricksecker's water scavenger beetle, red-legged frog, and northwestern and southwestern pond turtle should be conducted by a qualified biologist in all ponds prior to development.
- iii) If surveys find nesting black-shouldered kite, loggerhead shrike, or saltmarsh yellowthroat are present in trees along the freshwater marsh or in grasslands, respectively, suitable replacement foraging habitat should be evaluated for nesting availability. Construction should be timed to occur after the fledging seasons of the kite (June through August), the shrike (March through August), and the saltmarsh yellowthroat (April to mid-July), before the pairing season in February.
- iv) Surveys for Pacific western big-eared bat shall be conducted during the spring and winter seasons to determine if nursery colonies or winter colonies occur in the building. If individuals are found within the building during springtime, destruction of the building shall commence in August when the young have left with the females. If a winter roost occurs in the building blockage by a qualified pest control operator shall be conducted prior to destruction of the building.

The City shall condition approval of individual development proposals on implementation of the following programs:

Biology-6d: As much open space as possible within sites proposed for development shall be retained as informal open space for wildlife habitat, rather than as formal, landscaped parks or grounds. Wildlife areas shall be revegetated with native or non-native grassland and native species of shrubs requiring no irrigation and little management beyond the first year after planting.

Biology-6e: Wildlife habitat shall be consolidated into "preserves" that are as large as possible.

Biology-6f: Habitats on adjoining parcels shall be as contiguous as possible, to create wildlife corridors.

Biology-6g: Wildlife open space shall be placed adjacent to other wildlife habitat, to preserve the greatest ecological value.

Biology-6h: Public access to wildlife habitat shall be minimized by placing trails close to buildings so as to provide the largest area of habitat possible with the least amount of impact from the public.

Impact Biology-6: Significance After Mitigation

Less-than-significant.

Impact Biology-7: Loss of open space within the Hercules City Limits would have a cumulative adverse impact on wildlife. This would be a significant impact.

Grasslands around the San Pablo and San Francisco Bays have been eliminated by development, thus pushing wildlife into smaller and smaller parcels of habitat. Few species utilizing grassland habitats are able to adapt to other habitats.

Impact Biology-7: Mitigation Measures Proposed as Part of the Project

None identified.

Impact Biology-7: Mitigation Measures identified in other *General Plan* Elements

None identified.

Impact Biology-7 : Mitigation Measures Identified in This EIR

The City shall condition approval of individual development proposals on implementation of the following implementation programs:

Biology-7a: Open space areas shall be designed into the footprint of proposed projects and shall be located adjacent to existing open space areas, providing a larger continuous area for wildlife to use.

Biology-7b: Open space areas, if disturbed during construction, shall be landscaped with native species.

Biology-7c: Trails, if any, shall be placed close to buildings so as not to disturb wildlife nesting/denning areas.

Impact Biology-7: Significance After Mitigation

Less-than-significant if project-specific impacts are mitigated to a less-than-significant level.

REFERENCES - Vegetation and Wildlife

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E. VISUAL QUALITY

SETTING

Existing Visual Character

The existing visual character of Hercules is determined by the attributes (e.g., color, form, texture) of specific site features and by the patterns which the features have assumed as a result of natural and/or cultural processes. Specific visual settings of the parcels in Hercules proposed for land use redesignations are grouped into three geographic regions: Upper Drainage Riparian Valley, Lower Drainage Ridges and Plateau, and Lower Drainage Floodplain. Parcels 1 and 4 are in both the Lower Drainage Floodplain and Lower Drainage Ridges and Plateau. In each region, assessment of the visual attributes and patterns of the regional features is organized according to the following general descriptive categories: site location and spatial organization, surface waters, vegetation, cultural (built) features, and views. Viewpoints of pictures included in this report are shown in Figure IV.E.1.

Existing Visual Character of the Upper Drainage: Riparian Valley (Parcels 8-14, A, D-J)

Site Location, Landform and Spatial Organization

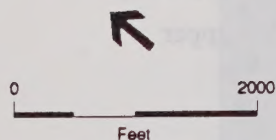
The upper valley portion of the study area is composed of parcels 8-14 and D-J. Parcels 9-12, 14 and D-J occupy the flat to gently sloping floor of the western end of Franklin Canyon. Parcel I occupies a separate low-lying area near I-80, separated from the other Upper Drainage parcels by a ridge. Parcel 8 is located on the southerly slope of the Refugio Valley and Parcel 13 is located on the ridge separating Refugio Creek Valley from Franklin Canyon. Parcel A occupies a lowland adjacent to the Refugio Creek riparian area. Elevations of the upper drainage parcels range from 200 to 350 feet mean seal level (msl). The parcels, singly and in aggregate, do not exhibit distinctive overall form and do not have well-defined boundaries, except for Parcel 11, which comprises a regularly-shaped bowl defined by freeway and access road embankments. In general, the visual quality of these parcels is low. Specific viewpoints on the higher ridges afford long-range, panoramic views across San Pablo Bay.

Surface Waters

No surface waters are visible from the lower elevations of these parcels; however, the highest elevation of Parcel 13 has long-range panoramic views that include San Pablo Bay. Parcel A



- ← 1 General Location of Viewpoints
 ① / A Parcel Reference



SOURCE: Environmental Science Associates, Inc. — Hercules General Plan Land Use and Circulation Elements Update / 930314 ■

Figure IV.E.1
 Viewpoints of Parcel Photographs

IV. Environmental Setting, Impacts and Mitigation Measures

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also allows short-range views of Refugio Creek, filtered by existing vegetation. The bay waters are a scenic element in views from Parcel 13, but in general, surface waters are not an important visual component of the upper drainage parcels.

Vegetation

Existing groundcover on all upper drainage parcels and lots consists primarily of shrubs, weeds and occasional concrete rubble and debris. Isolated areas of the upper drainage parcels support trees, including Parcels G and H, as do the CalTrans and PG&E yards adjacent to Parcel 12. Within the upper drainage properties, the densest and visually most important group of trees is the riparian association on Parcel 11 (Figure IV.E.2, Viewpoint 1). These low trees, mostly willows (*Salix* spp.), form a dense stand, surrounded by brush and annual grasses, marking the course of the East Branch of Refugio Creek which joins the Main Branch at San Pablo Avenue. However, this stand of trees is visually isolated by its location in the middle of a freeway exit loop. The steep embankments of the roadways create a wall around the parcel bottomland and cut off views to and from it except from fast-moving cars leaving I-80. Potentially, this vegetation could have some visual value if it were reinforced with appropriate taller tree species that could be seen above the roadways. Further east along the Franklin Canyon floor, single native riparian tree specimens appear at irregular intervals, as remnants of former, more robust stands.

Cultural Features

Fences and utility and power poles cross parts of some of the upper drainage parcels. The Santa Fe Railroad track curves along the Franklin Canyon floor, bordering Parcels 11, 12, 14, E, F, G, and H. The alignments of industrial features provide the only visual pattern element against the fine texture and undifferentiated colors of the vegetation scrub cover. The existing Caltrans and PG&E yards adjacent to Parcel 12 contain an assortment of vehicles, storage piles and barrels. Trucks, sheds, barrels and various building materials appear on other upper drainage parcels. No cultural features of historic, religious, ethnic or social interest exist on the upper drainage parcels, and the parcels do not provide views of such features.

Upper Drainage Views

Views from the upper drainage parcels are confined to medium and short-range prospects by the valley walls, except easterly up the floor of Franklin Canyon. These views are of uneven but



1. Riparian Vegetation and Wetlands (Parcel 11) Looking North from I-80 Exit Ramp.



2. View of Wetland Area in Refugio Creek Tributary (Parcel 3).

SOURCE: Environmental Science Associates

Hercules General Plan Land Use and Circulation Elements Update / 930314 ■

Figure IV.E.2
Parcel Photographs

IV. Environmental Setting, Impacts and Mitigation Measures

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generally low visual quality. Views of the valley walls include closely-spaced structures in residential development, the SR 4 roadway, the Santa Fe Railroad tracks, and on the northerly valley wall, sparse and immature tree plantations. In general, man-made features dominate the lower elevation viewsheds. However, from the highest elevations of Parcel 13, adjacent to Sycamore Avenue, there are sweeping views up Franklin Canyon, as well as some long-range views of San Pablo Bay.

Existing Visual Character of Lower Drainage: Floodplain (Parcels 1-4, and C)

Site Location, Landform and Spatial Organization

Refugio Creek is joined by the easterly of its two tributary branches to the north of the intersection of Sycamore Avenue and San Pablo Avenue. This is the approximate point at which the drainages open into a broad floodplain, which comprises the lower drainage floodplain. Elevations of the floodplain range from 5 to 20 feet msl. In aggregate, Parcels 1, 2, 3, C, and part of Parcel 4 are visually defined as the bottom of a large bowl, with edges around the perimeter of the floodplain from Hercules Point to I-80. Edges of Parcels 1 and 4 have higher elevations, and are also part of the Ridges and Plateau classification. Because the terrain of the floodplain is generally flat, the vertical steel 100-foot-high structures of the former Hercules Powder Company are visually prominent in views from points throughout the floodplain.

Surface Waters

San Pablo Bay and Refugio Creek are visible from various points on the lower drainage floodplain. Viewpoints on Parcels 2, 3, 4 and C afford framed views of San Pablo Bay along eucalyptus-lined view corridors. Development has previously modified the lower drainage of Refugio Creek, and therefore the visual form of the floodplain, to a considerable extent. The natural alignment of the channel of the creek is unknown. West of San Pablo Avenue, the creek was evidently channelized, straightened and deepened by the Hercules Powder Company in the early part of this century. High tides and heavy runoff periodically combine to create a backwater effect that is visible from the banks. In winter, when the water table is within two to three feet of the surface, the creek may overflow its banks, as it did in 1983. Although the surface creek waters are not visible year round except to an observer standing on adjacent banks, riparian vegetation and the shallow ravine can be seen at slightly higher elevations on the floodplain.

IV. Environmental Setting, Impacts and Mitigation Measures

E. Visual Quality

Vegetation

The general vegetative cover throughout the floodplain consists of annual grasses with occasional shrubs and trees, but is highly variable. In discontinuous segments following an alignment that crosses Parcel 3, the creek and an association of introduced tree species and remnants of the native riparian vegetation constitute a gently meandering natural linear feature (Figure IV.E.2, Viewpoint 2). At one point adjacent to the creek, Eucalyptus trees originally planted to screen the dynamite factory form a visually unexpected regular zig-zag across the plain. The low ridges to the south of the floodplain have stands of eucalyptus trees growing on them; from points within the plain, the medium-textured foliage of the mature trees softens the line of the topography and also screens existing residential development. Parcel 1 also has a meandering line of eucalyptus trees crossing through it.

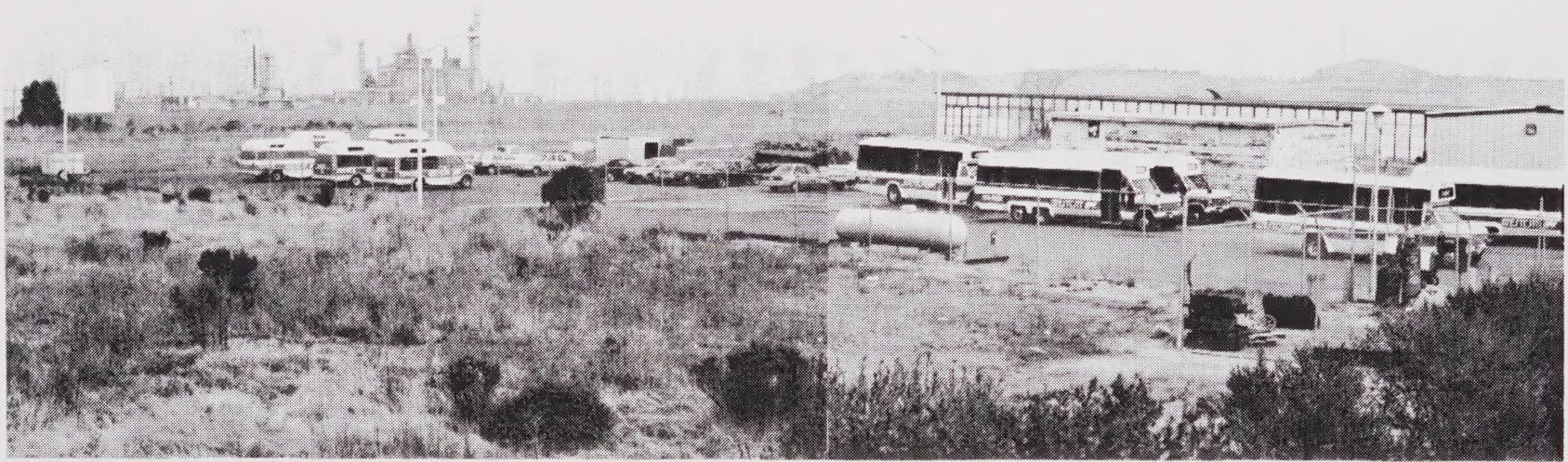
Cultural Features

From other vantage points in the plain, views are dominated by the vertical steel-frame structures of the former Hercules Powder Company and by the low, rectilinear Hercules Sewage Treatment Plant and its paved grounds (Figure IV.E.3, Viewpoints 3 and 4). The industrial structures, which include a power plant, storage tank, and smokestacks, are no longer in use and consequently exhibit signs of disrepair. The grounds of the sewage treatment plant contain stacks of tires, storage tanks and vehicles. Piles of rubble and debris occur in a haphazard distribution throughout the lower plain (Figure IV.E.4, Viewpoint 5).

The low, bayside ridges to the north of the floodplain are mostly open; the roofs of newly constructed buildings in the North Shore Business Park constitute a distinctive visual element. To the northeast and higher in elevation, extensive grading has created angular profiles on the ridges.

Lower Drainage Floodplain Views

Views within the floodplain tend to be sweeping but variable in quality. Bay views are blocked at ground level by the Southern Pacific Railroad embankment (except from Parcel 2) and in general are partially obstructed and degraded by the deteriorated structures of the chemical company. Views to the north, east and west are medium-range; in all but those to the south, there is some degree of intrusion by industrial structures, residential development or roadways and vehicular traffic.



3. View Looking Northwest across Refugio Creek Floodplain (Parcels 1 and 6), Including Sewage Treatment Plant and Former Hercules Chemical Plant.



4. View Looking Southwest across Refugio Creek Floodplain (Parcels 1, 3, and 4), Including Sewage Treatment Plant and Former Hercules Chemical Plant.



5. Rubble Pile in Refugio Creek Floodplain. (Parcel 3).



6. View of Eucalyptus Trees Screening Residential Development Looking South from Parcels 1 and 4.

SOURCE: Environmental Science Associates

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Figure IV.E.4
Parcel Photographs

IV. Environmental Setting, Impacts and Mitigation Measures

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Southerly and southeasterly views benefit from screening of the San Pablo Avenue roadway and the Olympian Hills residential development on the plain's southern and eastern edges by dense stands of eucalyptus trees (Figure IV.E.4, Viewpoint 6). Partial views of the rolling hills to the east are afforded from the plain over the tops of the trees. In addition to partial screening, the Eucalyptus trees provide a strongly vertical emphasis in a landscape that is otherwise characterized by lower, more rounded forms. These vertical forms enhance the sense of enclosure along the plain's southerly and easterly edges.

Hercules Point itself is of generally low visual quality. Remnant industrial structures, including a large storage tank and a dilapidated pipeline extending into San Pablo Bay on a pier, dominate the point. The shoreline is cluttered with discarded rusting boilers, tires, bricks, pipes, and pilings (Figure IV.E.5, Viewpoint 7). Hercules Point (Parcel 2) is surrounded by a salt marsh zone of variable width that is covered with cordgrass and pickleweed; the marsh is generally wider on the northerly side of the point (Figure IV.E.5, Viewpoint 8). At low tide, mud shoals covered with cordgrass are visible. Despite the industrial character and the deteriorated condition of the structures on Hercules Point (Parcel 2), the views from it are of high quality (Figure IV.E.6, Viewpoint 9). From the northerly shore of Hercules Point, open views are afforded north across open water to Lone Tree Point and beyond to Solano and Napa Counties. To the east, the Briones Hills are visible in the distance. To the west, across San Pablo Bay, the Marin and Sonoma County hills are in view, including Mount Tamalpais, Big Rock Ridge, and Mount Burdell.

Visual Character of Lower Drainage: Ridges and Plateau (Parcels 1, 4-7 and B)

Site Location and Spatial Organization

The ridges and plateaus of the lower drainage area comprise walls of the bowl, with high points adjacent to San Pablo Avenue and Interstate 80. Lower elevations of the walls are located on the promontory above Hercules Point and the Historic District, which includes the former Victorian homes of the Hercules Powder Company. Elevations range from 5 to 250 feet msl, with the highest point north of the Floodplain. Portions of Parcels 1 and 4 fit into the floodplain category as well as the Lower Drainage. The high point is an approximately 250-foot hill cut by I-80 that stands out in views from the floodplain due to the level crest and uniform slope angle established by grading. To the west of this hill, the ridgeline decreases in elevation to approximately that of the southerly ridge. The ridges of lower drainage Parcels 1, 4-7 and B provide bay views and



7. Hercules Point, with Pipeline and Industrial Debris (Parcel 2).
View Looking Northeast, Including Shoreline and Railroad Embankment (Parcel 1).



8. Hercules Point, Looking Southwest Toward Salt Marsh and Former Wharf (Parcel 2).

SOURCE: Environmental Science Associates

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Figure IV.E.5
Parcel Photographs



9. View Looking North Toward Hercules Point Showing Tidal Flats and Parcel 2, San Pablo Bay Beyond.



10. View Corridor Looking North Through Eucalyptus Trees (Parcel 5).

SOURCE: Environmental Science Associates

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Figure IV.E.6
Parcel Photographs

IV. Environmental Setting, Impacts and Mitigation Measures

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long-range inland views of high scenic quality in places; some of the views are filtered through eucalyptus trees (Figure IV.E.6, Viewpoint 10).

To the north of the floodplain on the ridge separating it from the Rodeo Creek drainage, a virtually level plateau comprises the majority of Parcel 7. The parcel is currently used as a pasture. The uniform closely cropped grass cover and the level terrain render the plateau featureless and visually of little interest, except at its northerly end. There, the property slopes down into the Rodeo Creek drainage and supports mature oak trees which have high aesthetic value, especially given the scarcity of similar specimens in the vicinity (Figure IV.E.7, Viewpoint 11).

Surface Waters

The ridges and plateaus of the lower drainage afford panoramic views of San Pablo Bay, that are of high visual quality. Views are partially obstructed by occasional stands of eucalyptus and oak trees. The Refugio Creek riparian corridor is visible from some points on the ridges and plateaus, although the surface water is generally visible only from the banks. Parcel B has limited panoramic views of San Pablo Bay from higher elevations, as existing homes and trees obstruct long-range views at the lower elevations on the parcel.

Vegetation

The dense stands of Eucalyptus trees create an environment of forested groves alternating with grassy openings along the southerly ridge of lower drainage Parcels 4 and 5. From within the groves, views open down the ridge slopes and into the floodplain through informal rows of irregularly-spaced trees (Figure IV.E.6, Viewpoint 10). The spatial scale within the groves is intimate and the degree of enclosure provides a contrast to the breadth of the floodplain below. The eucalyptus groves continue in a general alignment that bends northward to follow San Pablo Avenue, screening the roadway and residential development to the east in views from the floodplain upslope across Parcel 4. At points including the junctions with east-west arterials, view corridors open through the barrier of Eucalyptus trees from San Pablo Avenue, affording fragmentary, brief downslope views of the hill slope and floodplain to vehicular travelers. The northerly ridge, especially as it nears the bay, is without the dense stands of mature Eucalyptus trees that characterize and enhance the spatial definition of the opposite rim of the floodplain. Non-native grasses provide groundcover around the trees.



11. Specimen Oaks on Parcel 7.

IV. Environmental Setting, Impacts and Mitigation Measures

E. Visual Quality

Cultural Features

The former Hercules Powder Company is located in a promontory at the end of the southerly ridges (Parcel 1). These buildings are related by architecture and proximity to the Victorian-style historic houses (listed in the National Register of Historic Places) of the former company town below and to the south. New construction on the plateau of Parcel 6, which consists of large industrial and office buildings, is low in profile but massive in scale and creates a sense of urbanization within the developing business park. Other than the remnants of the Hercules Powder Company and associated Victorian-style homes, the lower drainage ridges support no aesthetically significant cultural features.

Lower Drainage Ridges and Plateaus Views

In westerly views from the promontory (at the end of the southern ridges) as well as other elevated points, lighting and atmospheric effects change the appearance of San Pablo Bay and its waters, giving views of and across the bay a dynamic quality that is part of its aesthetic value. Under some visibility conditions, views extend to the opposite shore and terminate in a horizon defined by the profile of the Marin, Sonoma, and Napa County hills, including Mount Tamalpais. Under other conditions, including daylight mists and fog, the opposite shore is not visible and bay views are ephemeral, lacking any horizon line. Easterly views from the promontory are panoramic, taking in a sweep of San Pablo Bay and the Southern Pacific railroad tracks following its shore, Lone Tree Point and the oil storage tanks and industrial facilities that extend northward into Crockett, and the rolling terrain to the east that includes Franklin Canyon.

Northern views from the southern ridge have a partially rural quality, due to the grassy reaches of the floodplain in the foreground and the Eucalyptus stands on the opposite ridge; however, the rigid rectilinear shapes and reflective white panels of the sewage treatment plant and the rusted framing of the chemical plant structures reduce the natural character and quality of these views.

Southerly views from the northern and eastern plateau and ridge are medium and long-range and encompass developed hillsides in Rodeo and, in the distance, the Briones Hills. Southerly views are blocked by large oil storage tanks.

Plans and Policies

Hercules General Plan

The adopted *General Plan* does not contain a visual quality or aesthetics element. However, throughout the *Plan* in a number of disparate objectives and policies, a general commitment is stated to conserving and enhancing the visual quality resources of the City.

As part of its overall objectives and policies, the *General Plan* proposes a management program to conserve and develop the "natural amenities in the City" (City of Hercules, 1990). The Open Space and Conservation Element refers again to a management program to preserve the natural amenities of the City.

The *General Plan* calls for the preservation and enhancement of visual resources associated with scenic routes. Within the study area, San Pablo Avenue is identified as a scenic corridor of "relatively high environmental value" whose amenities should be protected and developed as the city expands (City of Hercules, 1985). Parcels bordering San Pablo Avenue include Parcels 3, 4, 5, 6, 7, 9, and 10. State Route 4 is considered not to have "outstanding scenic quality" at the present time (City of Hercules, 1985). However, the *General Plan* notes that SR 4 is a visual gateway to the city and recommends that the city indicate an interest in future improvements to the route, particularly its design configuration and its landscaping. Parcels D, E, J and H are visible from SR 4.

The Open Space/Conservation Element contains specific policies to preserve and enhance the visual resources associated with Refugio Creek and its tributaries and to preserve designated stands of trees and specimen trees. The policies include maximizing the utilization of the drainage courses for aesthetic purposes and as buffers to development and employing landscaping and "remedial measures" generally to facilitate these uses (City of Hercules, 1985). The Open Space/Conservation Element also contains policies to preserve important stands of trees and individual specimen oaks and Eucalyptus trees. The policies require that grading and construction activities in the vicinity of significant stands of trees be planned and supervised to prevent damage to the trees. The Eucalyptus trees in the areas west of I-80 and in Refugio Valley are cited as requiring special design consideration. Individual specimen oaks and Eucalyptus trees have been designated in a special plant materials study conducted for the City. The *General Plan* states that detailed grading and drainage design is necessary to ensure the preservation of these trees (City of Hercules, 1985).

IMPACTS AND MITIGATION MEASURES

Significance Criteria

According to the *CEQA Guidelines*, significant effects on the environment include substantial or potentially substantial adverse changes in objects having aesthetic significance, and substantial or potentially substantial, demonstrable negative effects (*CEQA Guidelines*, Section 15382).

Appendix I of the *CEQA Guidelines* contains six criteria for identifying aesthetic impacts: obstruction of a scenic vista or view open to the public; creation of an aesthetically offensive site open to public view; degradation of an object having historic or aesthetic significance; division or disruption of the physical arrangement of an established community; introduction of new sources of light and glare; and conflict with adopted environmental plans and goals of the community where a project would be located.

View Obstruction

Views from or of a project site may be physically blocked, reduced in area, or reconfigured by elements of a proposed project. Dynamic view sequences of a project site or of a site feature, such as sequential views from a vehicle traveling along a roadway or from a pedestrian path, may be shortened or interrupted by a proposed development.

View Impairment

Impairment of the quality of important public views can result from the introduction into an existing view of a visual feature that is "aesthetically offensive" in itself, or from the degradation of an existing visual feature that has aesthetic significance, or from the introduction into an existing view of objects or patterns that exhibit a high degree of visual contrast with the existing objects and patterns on the site. The physical changes that may impair the quality of important public views include changes in the scale, form, color and texture of natural and cultural visual features existing on the site. Such changes can result from new land uses, new structures, grading and excavation, elimination of existing vegetation, changes in the alignment or area of surface waters, or landscaping.

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Degradation of Aesthetically Significant Objects

Degradation of objects having historic or aesthetic significance may result when such an object is removed or physically altered, or when the object's immediate contextual surroundings are changed so as to visibly detract from the aesthetically positive elements that contribute to the object's aesthetic significance. These elements include its apparent age or historical period; architectural style, design or quality of craftsmanship; visible function; and context within a larger visual framework. An object may be a single structure or entity, such as a house or heritage tree, or a grouping of component parts that contribute to a visual whole, such as a row of architecturally consistent facades or buildings unified by symbols or visual themes.

Disruption or Division of Established Community

Division or disruption of the physical arrangement of an established community may result from development that is substantially larger in scale than existing uses, or that introduces novel forms, materials, textures or colors into existing areas in which building types, land uses and architectural styles are homogenous, or that interposes barriers between spatially related features.

Introduction of New Sources of Light and Glare

Intrusive new sources of light and glare may include commercial signs, nighttime security and task lighting, expanses of surface parking, and reflective building materials and finishes.

Conflict with Adopted Environmental Plans or Goals

A project may result in changes in visual character and/or existing views that conflict with the adopted environmental plans or goals of the community in which the project is proposed. The Hercules *General Plan* relationship to visual quality is discussed in the Setting of this section.

Proposed Land Uses

Development consistent with the proposed Land Use Element Update would alter the visual character of each parcel, by introducing new buildings and infrastructure. In certain instances, where little development has occurred previously, such as on Parcels 3 and 4, new development would contrast with the existing predominantly natural character of the area. New development also would have the potential to obstruct scenic views. Height limits described in the impacts are

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based on current zoning. Expected visual character of the study area with the proposed land uses is addressed according to the same three geographic areas presented in the Setting: Upper Drainage Riparian Valley, and Lower Drainage Floodplain, Lower Drainage Ridges and Plateaus.

Upper Drainage Riparian Valley (Parcels 8-14, A, D-J)

The upper drainage parcels proposed for the General Commercial land use designation (Parcels 9, 11, 12, 14, D, E, I, and J) would be regraded and filled according to the requirements of specific projects. Vegetation, including some riparian and wetlands species, could be affected if appropriate mitigation were not employed. Typical uses under the General Commercial designation would include shipping and receiving stations, retail stores, service stations, restaurants and office buildings. General Commercial building facades would be distinguishable by their horizontally-oriented frames and rooflines, with stucco, concrete or painted exterior surfaces. Individual structures could have low vertical profiles but large footprints, and thus, substantial perceived mass and bulk. Structures would typically be one to two stories in height, and would generally not exceed the typical floor-area-ratio (FAR) of .30, but could have an FAR of up to 1.00, provided the building were compatible with the surrounding environment. Sign height would not exceed 20 feet, but would be visible from surrounding surface streets (City of Hercules, 1993). Development could impair some long-range views of San Pablo Bay, and would introduce new sources of light and glare. As discussed in the Setting, the visual quality of these parcels is generally low.

Parcels 8, F, G, and H would be redesignated as Community Commercial. Typical Community Commercial uses for these parcels could include retail stores, office or service industry buildings, and would be one to two stories high, with a typical FAR of 0.30 (City of Hercules, 1993). The FAR would be a maximum of 1.00, provided the proposed structure would be compatible with the surrounding environment. Parking spaces would be located adjacent to the buildings.

Parcel 10 would be redesignated as Commercial Public, and would be developed as a transfer hub for BART Express, WestCAT, and other bus operators. This would involve a small amount of structures. Most of the visual impact would be due to the increased amount of buses. Buses and other vehicles would represent new sources of light and glare.

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Parcel 13 would be redesignated as planned Commercial Residential. The typical FAR would be 0.30, but could be increased to 0.40. Development on this parcel would be governed by a specific area plan or master plan. Thus, the visual impact would vary according to the proposed type of development.

Metal storage tanks, steel drums, concrete piles, and automobiles are among the existing items on upper drainage parcels that generate glare from reflective surfaces. New development on these parcels would remove existing reflective materials and replace them with new reflective material (e.g., moving and stationary automobiles, windows, etc.). Night lighting would increase above existing levels. Parking illumination, automobile headlights and operational lighting would be visible from higher vantage points in Franklin Canyon and the Briones Hills. Development on several of these parcels could screen some offensive views of existing cultural features. For example, redevelopment of Parcels D and E could remove the existing heavy equipment on these sites, or could block views of the equipment by introducing new buildings.

Lower Drainage: Floodplain (Parcels 1-4, C)

Development consistent with the proposed Land Use Element update would result in grading and removal of some vegetation from these parcels.

The proposed Planned Office-Research and Development land use designation on Parcels 1 and 3 could result in business park structures being developed in the vicinity of the existing North Shore Business Park. Large-scale structures one to two stories high, potentially with distinctive design elements (e.g., the exposed steel framing at the existing BioRad building) would be built adjacent to and discontinuous from existing development. Buildings taller than two stories would also be permitted, providing the visual attributes were compatible with the surrounding environment and structures, and conformed with the character of the *Master Plan*. Administrative offices, warehouse, distribution, or wholesale buildings could be built under this designation. The FAR would typically be 0.30, but could be increased to 1.00, provided the structure conformed with the surrounding environment (City of Hercules, 1993). Horizontal rooflines, stucco or cement external features, and detached parking areas would be typical design elements.

The proposed Waterfront Commercial land use designation on Hercules Point (Parcel 2) would result in the construction of retail shops, bait and tackle stores, food and beverage cafes, and

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water-oriented recreational instruction facilities on Hercules Point and the surrounding area. These single-story structures would be built to preserve view corridors and viewsheds of the San Pablo Bay, Mt. Tamalpais and shoreline across the Bay (City of Hercules, 1993). Parking lots for the businesses could also be built in this area, and would introduce new sources of light and glare. This development could degrade or impair views by introducing buildings, but would have the benefit of removing the existing cultural features (*i.e.*, unused former plant equipment), which have a negative aesthetic impact at present.

Adoption of the multi-family medium density residential land use designations would result in home construction in an area of low to moderately high visual quality (Parcels 1, 4 and C). Condominiums, apartments or townhomes would be built with adjacent parking areas. Buildings would be limited to 45 feet in height and would likely have landscaping composed of non-native trees such as existing Eucalyptus, shrubs and ground covers that would interrupt the potential visual monotony of building facades. Exterior finish and building elements are likely to be similar to other medium-density residential uses in Hercules (e.g., stucco or painted walls, covered parking areas, red clay fireproof roofs). Glare could also increase from more reflective surfaces.

Lower Drainage: Ridges and Plateau (Parcels 1, 4, 5-7, B, and C)

Multi-family medium-density development adjacent to San Pablo Avenue on the southern ridge would require grading and leveling of the area (Parcels 4, 5 and B). Typical design elements would be similar to those described above. Structures would not exceed 30 feet in height. Glare would be generated from stationary and moving automobiles, and possibly structures, and would be most visible only from I-80. Because Parcel B is separated from San Pablo Avenue by a slope and plateau, development on this parcel might not be visible from the road. Night lighting from streetlights, homes, and moving automobiles would be visible from the surrounding arterial roads and higher viewpoints east of I-80 on some upper drainage parcels. View corridors from Parcels 4 and 5 would be obstructed by the introduction of new development.

The General Commercial land use designation (Parcels 1, 4, and 6) would result in the construction of retail and office buildings west of I-80, and on San Pablo Avenue. As described above for development in the upper drainage, General Commercial uses would have horizontally oriented frames and concrete or stucco building facades, and detached illuminated parking lots.

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General Commercial uses would have a typical FAR of 0.30, and maximum of 1.00 (City of Hercules, 1993).

Under the proposed Planned Commercial-Industrial land use designation (Parcel 7), light industrial and commercial projects could be built on the plateau adjacent to and between I-80 and San Pablo Avenue. The northern edge of the parcel supports specimen oaks, which could be removed or be obstructed by new development projects. Typical projects under the Commercial-Industrial land use designation would include retail, administrative and service offices, research and development, and manufacturing. Developments would be visible from the north residential development in Rodeo, the I-80 corridor, and the Briones Hills.

The proposed Historic Town Center land use designation would bring into conformance with the *General Plan* existing two-story Victorian-style historic houses and the Hercules Powder Company clubhouse. Development would be permitted under this designation for the construction of 40 new residential units with parking available in garages and open guest parking areas. Although the new structures would not replicate the Victorian architecture of the former company town, the exterior appearance would complement the existing structures and create a visually unified environment. View corridors and vista points would be established in the vicinity to provide public visual access to the Bay (City of Hercules, 1993).

Typical construction under the General Commercial designation north of the waterfront ridge and adjacent to Hercules Point (Parcel 2) could include free-standing strip shopping centers. Building height would be one to two stories high, unless taller buildings conformed with the overall character of surrounding development. This area would be surrounded by the Historic Town Center and Waterfront Commercial designations.

Impacts

Impact Visual-1: Implementation of the proposed land use designations could result in development that impairs the existing scenic quality of the upper drainage and lower drainage ridges, plateaus and floodplain. This would be a significant impact.

Policy 1A of the proposed Land Use Element Update encourages development that could result in visual contrast. Specific industrial, commercial or residential developments could degrade existing landscape features by removing (through grading or clearing of vegetation) the features or by exhibiting a high degree of visual contrast with those features. The Hercules Historic

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District, specimen oak trees, Eucalyptus groves, open space areas, and Refugio Creek riparian corridor are man-made or natural objects having aesthetic significance that are subject to impairment by development of new structures. These objects occur mainly on Parcels 1, 3-7, and 11.

For example, isolated areas of these parcels support low trees, mostly willows (*Salix* spp.) in a dense stand, and single native riparian trees. Besides serving as a screen to residential development and providing visual definition, these trees provide a positive visual amenity, particularly from higher viewpoints. Views of these trees would be most sensitive to view degradation by new development under the proposed General Commercial designation. Structures built in these areas could impair the view quality of these tree stands, by introducing structures that have different colors, texture and scale than the existing natural features. View impairment of some of the cultural features, such as the Hercules Sewage Treatment Plant and WestCat bus storage area, would not be considered significant.

Impact Visual-1: Mitigation Measures Proposed as Part of the Project

The following policies, objectives or programs are in the proposed Land Use Element Update:

Policy 6B: Multi-family residential land should be developed with a balance of open space, landscaping, and recreational amenities and should be accessible to commercial and recreational areas and public transportation.

Objective 7: Achieve a pattern of development that is consistent with the City's image.

Program 7A.1: Provide landscaping along major regional streets and highways. This landscaping should soften the appearance of traffic and parking along those routes, while allowing view corridors to retail and other businesses.

Impact Visual-1: Mitigation Measures identified in other *General Plan* Elements

The City should develop a master drainage plan [for Refugio Creek] which provides for :

the definition and conservation of existing drainage courses of high aesthetic value (Open Space/Conservation Element, V.3.b1);

the maximum utilization of these drainage courses for buffers, open space, pedestrian circulation, recreation, aesthetics, flood control, etc. (Open Space/Conservation Element, V.3.b3);

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the enhancement of these drainage courses with landscaping, remedial measures and improved public access. The City should also develop ordinances and enforcement mechanism which will preserve, develop and maintain these drainage courses (Open Space/Conservation Element, V.3.b4).

Impact Visual-1: Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on implementation of the following mitigation measures:

Visual-1a: Development proposals should be reviewed in terms of natural objects in the vicinity that have aesthetic significance. This may include open space, eucalyptus groves, or vegetation that serves as a view corridor or has important visual attributes. Development proposals should be sited to ensure that these features are retained, resulting in minimal view impairment.

Visual-1b: Plantings that serve to screen views of residential development, or that help to maintain a natural-appearing landscape, should be retained to the extent feasible. Such plants could be thinned selectively if thinning would improve view corridors.

Visual-1c: Preserve the wooded tree-lined character of the proposed hiking/biking trail along Refugio Creek west of I-80.

Impact Visual-1: Significance After Mitigation

Implementation of the above measures would mitigate the impact to a less-than-significant level.

Impact Visual-2: Adoption of the proposed land use designations could result in development that could result in obstruction of scenic vistas and views open to the public. This would be a significant impact.

Development consistent with the proposed Land Use Element Update has the potential to obstruct views currently available to the public, including views of and from Franklin Canyon and the Briones Hills, San Pablo Bay, Mount Tamalpais, shoreline counties across the Bay and the lower drainage floodplain. These scenic views could be blocked if new construction were located near or adjacent to public viewpoints, scenic roads (e.g. San Pablo Avenue) and highways. Because the proposed land use designations permit only one- and two-story developments, it is unlikely that new construction would fully or partially block views of San Pablo Bay, Franklin Canyon and the Briones Hills within the project area, unless public viewpoints are adjacent to proposed developments.

Impact Visual-2: Mitigation Measures Proposed as Part of the Project

The following objective is in the proposed Land Use Element Update:

Objective 7: Achieve a pattern of development that is consistent with the City's image.

Impact Visual-2: Mitigation Measures identified in other *General Plan* Elements

None identified.

Impact Visual-2: Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals upon implementation of the following mitigation measures:

Visual-2a: Development should preserve important view corridors by identifying and preserving the attributes of the view corridor that characterize its significance (e.g. framing elements, surface water reflections, presence or absence of impinging details) as seen from roadways, pedestrian paths or other public vantage points to avoid view obstruction. The following views, from publicly accessible viewpoints, should be preserved as the City evaluates new development on a parcel-specific basis:

- Upper drainage views from higher elevations of Parcel 13 easterly up the floor of Franklin Canyon.
- Lower drainage views from Hercules Point north across open water to Lone Tree Point and beyond to Solano and Napa Counties.
- Lower drainage floodplain views from Hercules Point west across San Pablo Bay of Marin and Sonoma County hills, Mount Tamalpais, Big Rock Ridge, and Mount Burdell.
- Lower drainage ridge views from the promontory of San Pablo Bay, Lone Tree Point, Franklin Canyon and the Refugio Creek floodplain.
- San Pablo Avenue views of specimen oak tree stands and, where feasible, of Eucalyptus.
- Views of San Pablo Bay and the Hills of Marin, Sonoma and Napa Counties, and inland of the Briones Hills, that are available from various elevation points on Parcels 2, 3, 4, 5, 6, 7, and C and from the shoreline areas of Parcels 1, 2, and 6.
- Views from the former Hercules Powder Company offices on the promontory to the west, north and east.

Impact Visual-2: Significance After Mitigation

View obstruction by new development would be avoided by parcel-specific evaluation of important viewpoints and preservation of views. This would mitigate the impact to a less-than-significant level.

Impact Visual-3: Development in the upper drainage valleys, lower drainage floodplain and plateaus could introduce additional light and glare. This would be considered a significant impact.

By introducing new industrial, commercial and multi-family structures and automobiles into a bowl-shaped area, implementation of the proposed Land Use Element Update would create new sources of light and glare. Some open spaces that are unlit at night would be developed and create opportunities for night lighting. Commercial, residential and multi-family structures are often lit, or partially lit at night, and industrial sites and parking lots often maintain all-night security illumination. Because the development of new structures in Hercules would be a substantial increase over existing uses, the potential increase for night lighting could be noticeable from surrounding elevated viewpoints. Where commercial and industrial uses would be adjacent to or mixed with residential uses (e.g., lower drainage ridges and plateau by the Historic District), night lighting from new uses or buildings could create some lighting disturbance for nearby residences.

Daytime glare would also increase above existing levels by the introduction of new buildings, automobiles and other vehicles. The increase in glare from reflective automobile surfaces would be noticeably higher than existing levels. Commercial buildings with reflective windows, glass fountains or reflective signage could create glare from viewpoints in various parts of the City.

Impact Visual-3: Mitigation Measures Proposed as Part of the Project

None identified.

Impact Visual-3: Mitigation Measures identified in other *General Plan* Elements

None identified.

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Impact Visual-3: Mitigation Measures Identified in this Report

The City shall condition approval of individual development projects upon implementation of the following mitigation measures:

Visual-3a: The City of Hercules should evaluate the light and glare potential of new development on a parcel specific basis and apply the following measures:

- Screening of parking areas by using vegetation or trees. This would reduce the amount of glare generated from painted and chrome automobile surfaces and prevent expanses of stationary and moving automobiles.
- Hooded lights for nighttime illumination should be used for parking areas, shipping and receiving docks and industrial development. Hooded lights direct the light beam towards the ground, which if a dark pavement, will not reflect light and cause spillage into neighboring uses.
- Regular windows should be used instead of the glass walls or massive reflective windows often used for research and development, and office park developments.

Impact Visual-3: Significance After Mitigation

Implementation of the above measures regarding light and glare would reduce the impact to a less-than-significant level.

Impact Visual-4: Development consistent with the proposed Land Use Element could degrade objects having aesthetic or historical significance. This would not be a significant impact.

Although no specific development proposals have been received, new development could potentially degrade objects having historic or aesthetic significance. Examples of historically or aesthetically significant objects in Hercules include San Pablo Bay, the historic Victorian-style homes, buildings of the former Hercules Powder Company, and long-range views between canyons. Development of a steel tower, for example, could degrade the aesthetic significance of these objects. Since the City reviews development proposals on a project-specific basis, the City could impose project-specific conditions to reduce this impact to a less-than-significant level.

Impact Visual-4: Mitigation Measures Proposed as Part of the Project

The following objectives, policies or programs are from the proposed Land Use Element Update:

Objective 8: Preserve Hercules history while developing its future.

Policy 8A: Preserve and enhance the historic district area.

Program 8A.1: Develop plans to preserve and rehabilitate key historic buildings but not the former plant equipment and structures.

Program 8A.2: Prepare a detailed study of the Historic Town Center and adjoining area (including Hercules Point) in order to define the appropriate mix of public and private land uses, design guidelines, preservation of key buildings and vegetation (e.g. trees) and trails.

Impact Visual-4: Mitigation Measures identified in other *General Plan* Elements

None identified.

Impact Visual-4: Mitigation Measures Identified by this EIR

Visual-4a: The City would review development proposals on a project-specific basis. New development would be subject to design review as part of the City's project approval process.

Impact Visual-4: Significance After Mitigation

Less-than-significant.

REFERENCES - Visual Quality

City of Hercules, *General Plan*, 1985, 1990.

City of Hercules, Draft *Land Use Element Update*, 1993.

F. PUBLIC SERVICES AND UTILITIES

SETTING

Fire Protection

Fire protection services to the City of Hercules are provided by the Rodeo-Hercules Fire Protection District. The District provides 24-hour protection to 25 square miles including the City of Hercules and the unincorporated areas of Rodeo. The District employs 21 full-time staff and 12 reserve personnel. Approximately 75 percent of the full-time firefighters are currently certified Emergency Medical Technicians and all of the firefighters are trained in defibrillation. A 24-hour dispatch service is provided to the District under contract with the City of Pinole. The District has an automatic response agreement with the Pinole Fire Department (Salmi, 1993).

The District has two fire stations; a four-bay station at 326 Third Street in Rodeo and a three-bay station at 1680 Refugio Valley Road in Hercules. District equipment includes: one 1,500-gpm pumper, one 1,250-gpm pumper, two 1,000-gpm pumpers, two 500-gpm Wildland units, two 200-gpm Wildland units, one rescue truck, one utility truck and four staff vehicles (Salmi, 1993).

The District responds to all fire and rescue-related emergencies within District boundaries. In 1992, the District responded to 174 fire alarms and 1,358 medical and other emergencies. The average response time during a six-month period in 1993 was under four and one-half minutes. The response time goal of the District is to reach an emergency scene in built-up areas of the District within five minutes 90 percent of the time (Salmi, 1993).

The District receives revenue from property taxes, fire impact fees levied on new development (developer fees), and benefit assessment fees levied pursuant to a District ordinance.

Assessment fees are recurring annual fees collected according to a sliding scale based on risk factors according to the land use on the parcel. All parcels are assigned risk units based on the size and type of development; the number of risk units is multiplied by the unit fee to determine the assessment fee. The current (and anticipated) fee is \$52 per unit and, by ordinance, the unit fee cannot exceed \$52. The benefit assessment fees are used by the District for the purchase of new and replacement equipment and to support personnel costs (Salmi, 1993).

Fire impact fees are levied on all new development within the District, both in the City of Hercules and in the unincorporated community of Rodeo. Currently, the impact fees are levied

at a rate of 16.6 cents per square foot of floor area. The total square footage of a proposed project, whether industrial, commercial or residential, is multiplied by the fire impact fee rate to arrive at the total fee. Impact fees are used for the purpose of buying new and replacement capital equipment required to meet the demand that new development places on the District's fire suppression capabilities. Development fees may not be used to fund ongoing operations. For example, such fees collected from a proposed housing and hotel/golf course development in recently annexed land in Franklin Canyon could be used to build an additional fire station there (Salmi, 1993).

The District uses a variety of criteria to determine the service impacts associated with new development. The criteria include:

- Size of structure(s), fire flow demands;
- Classification of occupancy (Hazard type);
- Type of building construction and materials;
- Daytime population density;
- Increase in calls for service;
- Code enforcement issues;
- Fire protection features (automatic sprinkler system); and
- Travel time and distance from nearest fire station.

Pursuant to the Safety/Seismic Safety Element of the Hercules *General Plan*, the City is developing an Emergency Operations Plan to provide responsibilities and procedures in the event of a major disaster or emergency in the City.

Police Protection

Police protection is provided by the City of Hercules Police Department based at 111 Civic Drive, Hercules. The Department consists of 20 sworn officers (including the Police Chief), 3.5 civilian employees and 12 part-time reserve police officers. During a twenty-four hour period, the Police Department operates two sectors on a three-shift assignment. The minimum staffing level consists of one sergeant and two patrol officers, with a third officer overlapping on some days, generally during swing shift and on Fridays and Saturdays. A third sector is under consideration in anticipation of the Franklin Canyon area development. (Eaves, 1993).

The Department operates a fleet of seven marked patrol cars and four unmarked vehicles. A minimum of three patrol cars are used per shift. Current emergency response time within the City limits is four to seven minutes, while response to non-emergency calls averages 15 minutes.

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The Department does not undertake aerial or waterborne policing activities, but relies on the California Highway Patrol and Coast Guard. Communication and detention services are provided to the Department under contract with the Pinole Police Department (Eaves, 1993).

Currently, approximately one-third of all police service demand is in response to calls on commercial and industrial properties; residential areas experience a greater number of crimes due to the larger number of housing units. Typical residential crimes include burglary, theft and domestic assault. Crime rates in Hercules are considerably lower than rates for nearby cities and statewide averages (Eaves, 1993). Crimes reported in Hercules between 1988 and June, 1993 are shown in Table IV.F.1.

TABLE IV.F.1: POLICE RESPONSES IN HERCULES, 1988 - JUNE 1993

<u>Crime</u>	<u>Total Number</u>
Malicious Mischief	858
Residential Burglary	423
Drunk Driving	396
Auto Burglary	352
Auto Theft	344
Simple Assault	307
Grand Theft	205
Aggravated Assault	151
Commercial Burglary	133
Robbery	50
Homicide	2
All Other Theft	<u>495</u>
TOTAL	3,716

SOURCE: Hercules Police Department, 1993.

The City is considering expanding its police station, located at City Hall. As noted in the discussion of Fire Protection, the City is preparing an Emergency Operations Plan to provide responsibilities and procedures in the event of a major disaster or emergency in the City.

Schools

The West Contra Costa Unified School District provides elementary, middle and senior high schools for all areas within the City of Hercules, except for the Foxboro area, which is east of I-80 and north of SR 4. (The Foxboro area would not be directly affected by implementation of the proposed Land Use and Circulation Elements.) Students living in Hercules normally attend the following West Contra Costa Unified School District schools: Hercules Elementary and Ohlone Elementary (both in Hercules), Collins Elementary (in Pinole), Pinole Middle School and Pinole Valley High. Students living in Hercules are permitted to attend other schools outside of Hercules, unless the change would adversely affect the racial balance of the sending or receiving school. Students from neighboring cities may also attend schools in Hercules, subject to the same rules (Burkhart, 1993).

Currently, several schools serving Hercules students are operating over student capacity, as shown in Table IV.F.2. For purposes of this analysis, capacity is defined as "adequate" school facilities according to the state Department of Education. This measurement does not include certain non-permanent classrooms (*i.e.*, leased modular and portable classrooms and older modular and portable classrooms). As can be seen in Table IV.F.2, using the state definition, schools such as Ohlone Elementary and Hercules Elementary, both of which consist entirely of portable classrooms and one permanent multi-purpose room, can operate with an enrollment far in excess of theoretical capacity if many students are housed in "inadequate" facilities (Burkhart, 1994).

The existing schools also do not have adequate space for staff and visitor parking, student drop off areas, and recreation areas (Burkhart, 1993).

The District has indicated that three new schools will be available to serve future students in the Hercules area, including an elementary, middle and high school. A new elementary school, Hanna Ranch School, is scheduled to open in January 1995.¹ A new combination middle and senior high school will also be built in Refugio Valley, and is currently in the final stages of the approval process; opening is scheduled for September 1997. The capacities of the elementary, middle and senior high schools will be 650, 800, and 900 students, respectively. Combined, the

¹ Because it is opening mid-year, Hanna Ranch School will accommodate only Grades 4-6 in the 1994-95 school year. The district plans to phase in full operation at Hanna Ranch School; the school will not operate at capacity in the 1994-95 school year, but will accommodate about 250 students (out of a capacity of 650).

TABLE IV.F.2: HERCULES SCHOOL CAPACITIES AND ENROLLMENTS, 1994-1995

<u>School</u>	<u>Enrollment</u>	<u>Capacity /a/</u>
Hercules Elementary /b/	560	434
Ohlone Elementary /b,c/	769	124
Collins Elementary	<u>681</u>	<u>458</u>
Subtotal	2,010	1,016
Pinole Middle	952	583
Pinole Valley High	<u>2,099</u>	<u>1,909</u>
Subtotal	3,051	2,492
TOTALS	5,061	3,508

/a/ Portable classrooms are currently used to accommodate a large number of students. The state Department of Education does not consider certain non-permanent classrooms (*i.e.*, leased portables and older portables) as adequate facilities. Capacity figures include only adequate classrooms according to the state definition.

/b/ All classrooms are non-permanent (portable) classrooms.

/c/ School operates on year-round sessions.

SOURCE: Burkhart, 1994.

new elementary, middle and senior high schools would accommodate an additional 2,350 students (Burkhart, 1993).

Water

Potable water is currently supplied to the City of Hercules by the East Bay Municipal Utility District (EBMUD) through the Maloney and Mendocino Pressure Zones. The Maloney Pressure Zone is served by the Crockett Aqueduct and Sobrante Filter Plant, and supplies potable water to part of Richmond and elevations in Hercules between 0 and 200 feet mean sea level (msl). A cascade water system is used to pump water to several elevations higher than 200 feet msl. The Mendocino Pressure Zone serves elevations between 200 - 400 feet msl, and is the primary potable water source for recent residential development in the City. Storage systems for elevations between 200 - 400 feet msl are currently nearing capacity. Both zones provide adequate potable water supply and pressure to the City (Hoolihan, 1993).

EBMUD schedules capital improvements (e.g., storage systems, reservoirs, and pumping plants) based upon ABAG's *Projections '90* household projections. If a development would result in a higher number of households than ABAG projected for year 2010, additional capital improvements could be required, including pumping plants, storage tanks, and/or distribution pipelines. EBMUD expects to examine a potential revision of its system capacity charge (the fee that new users are charged for connection to the distribution system) as part of a master planning process to be completed for the area including Hercules in 1996. Expected new development, including that proposed for Hercules as part of the Land Use Element Update, would be taken into account in this planning process, and the system capacity charge could be adjusted so that required distribution improvements would be possible (Hoolihan, 1994).

EBMUD would be able to supply potable water to all parcels in the City. All parcels are located within EBMUD's service area (Hoolihan, 1993).

Wastewater

The City is served by two sewage treatment plants, the Pinole-Hercules plant and the Hercules Sewage Treatment plant. Existing capacity of the Pinole-Hercules plant is approximately 2.5 million gallons per day (mgd) average wet weather flow (AWWF),² while the existing capacity of the Hercules plant is between 0.38 mgd and 0.6 mgd.³ AWWF is the average flow during wet weather, including the effects of rainwater infiltrating into the system. The entire capacity of the Hercules plant is used exclusively by the City of Hercules. The City, as part of the assessment district for the Pinole-Hercules plant, has a current capacity and allocation of 2.04 mgd of the total capacity of this plant. However, because the Pinole-Hercules plant operates at less than design capacity, Hercules currently has access to about 1.4 mgd of treatment capacity at that plant. Thus, total current wastewater treatment capacity for the City of Hercules is between about 1.8 mgd and 2.0 mgd, AWWF.

The Pinole-Hercules wastewater treatment plant is jointly owned by the cities of Hercules and Pinole. Operation and maintenance of the plant is provided by the City of Pinole, and the City of Hercules reimburses costs incurred in treating Hercules' wastewater. The plant provides

² The Pinole-Hercules plant has a design capacity of 4.0 mgd, but actual capacity is approximately 2.5 mgd (Stigers, 1994).

³ The Hercules plant has a design capacity of 0.375 mgd, but the City of Pinole reports that when the Hercules plant is temporarily shut down, flow into the Pinole-Hercules plant increases by between 0.5 mgd and 0.6 mgd (Stigers, 1994).

secondary treatment, and treated effluent is pumped to Rodeo through a 24-inch force main, where it is discharged to San Pablo Bay.

The Hercules treatment plant is owned by the City. The treated effluent from the plant is pumped to Rodeo and discharged into San Pablo Bay using the same 24-inch force main and outfall as the Pinole-Hercules plant. The plant provides primary and secondary treatment using conventional aeration and pond treatment methods. The Hercules Sewage Treatment Plant is currently operating at capacity.

Collection systems for both sewage treatment plants are gravity-driven at higher elevations. Four lift stations are used for sewage transport from the properties in lower elevations of Hercules. Collector pipe sizes range from six to twelve inches. The existing collection system is adequate for current levels of development (Richardson, 1993).

The City is currently investigating three approaches for treating wastewater that would be generated beyond existing capacity. The first approach is to ensure that the Pinole-Hercules Wastewater Treatment Plant delivers the treatment capacity that it is rated to deliver, by ensuring that capital improvements are made to the plant. Another approach is to make improvements to the Hercules plant that would double its current treatment capacity. Finally, either a less expensive "package plant" could be built by developer(s) and/or the City could contract with the Rodeo Sanitation District for excess capacity at that district's facility. These improvements are expected to occur as the treatment demand increases from the expected buildout under the proposed Land Use Element Update (Richardson, 1993). The City currently plans to approximately double the capacity of the Hercules plant by expanding the aeration ponds at that plant. This expansion project, which would be funded by fees on new development in the study area, could be operational by 1996. The City of Pinole is also pursuing improvements to increase the capacity of the Pinole-Hercules plant to its design capacity of 4.0 mgd (Stigers, 1994).

Expansion of the aeration ponds at the wastewater treatment plant would require that the City obtain a permit from the U.S. Army Corps of Engineers to fill on-site wetlands. A Preliminary Wetland Delineation performed for the expansion site at the plant indicates that approximately 2.8 acres of seasonal wetland may be subject to Corps jurisdiction under Section 404 of the Clean Water Act. Following review of the preliminary delineation, the Corps could process an individual permit or allow the proposed wetland fill to proceed under the Nationwide Permit

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program. The Nationwide Permit program would require, among other things, that fill be properly maintained, erosion and siltation controls be used and maintained, disturbance from heavy equipment be minimized, and no special status species (including species proposed for listing) be harmed. Additionally, the fill would require approval from the Regional Water Quality Control Board. Expansion of the aeration ponds, including fill of wetlands, would require additional environmental review.

Storm Drainage

Storm drainage is collected by a storm drainage system and transported to Refugio Creek, and flows into San Pablo Bay. The Refugio Creek drainage network includes a flow storage facility in the form of an on-stream reservoir located in Refugio Park. In addition to its use as a recreational and scenic amenity, the reservoir stores excess runoff water during storm. The existing drainage system in Hercules is adequate for areas that are currently developed (Richardson, 1993).

Current federal National Pollutant Discharge Elimination Standards (NPDES), which regulate outfall pipe standards, could require construction of additional retention basins as well as pretreatment of existing storm waters. These standards would be implemented as new projects are developed. The City's Stormwater Management Plan contains Best Management Practices (BMPs) that would be implemented on a time frame as the City reaches physical buildout. The City's municipal permit was updated on September 15, 1993 (Freitas, 1993).

Solid Waste

Richmond Sanitary Service (RSS) provides solid waste collection service in Hercules through a franchise with the City for collecting and disposing of waste from residential areas; services are provided by contract with individual non-residential customers (Burch, 1993).

Solid waste from the City of Hercules is trucked to the West Contra Costa Sanitary Landfill in Richmond, which is expected to close in 1997. Following closure of the West Contra Costa Sanitary Landfill, solid waste will be taken to the Potrero Hills Landfill in Solano County or the Keller Canyon Landfill in central Contra Costa County. Both landfills have built-in growth factors to accommodate future waste generated in the City (Burch, 1993).

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As required by State legislation (AB939), each local agency is responsible for implementing a variety of programs in order to divert 25 percent of its solid waste from landfill sites by 1995 and 50 percent by 2000. To comply with AB939, the City of Hercules has adopted a Source Reduction and Recycling Element (SRRE). The City's SRRE includes a residential curbside recycling program conducted by Richmond Sanitary Service. Receptacles have been provided to single-family residential customers to recycle glass, plastic and newspaper. The SRRE also contains source reduction and composting goals to year 2000 (City of Hercules, 1991).

As part of the overall program to comply with AB939, development of a Resource Recovery Transfer Station has been proposed. The Transfer Station is under construction and scheduled for completion in late 1995. The facility will serve as a processing point where glass, aluminum and tin can be recycled. Tree trimmings would be recycled into particle board, and grass clippings would be used as compost (Burch, 1993).

Parks and Open Space

The City of Hercules has one community park, the 66-acre Refugio Valley Park, and five smaller community parks totaling about 22 acres. Refugio Valley Park consists of Refugio Lake and associated facilities at Refugio Valley Road and Pheasant Drive, a linear park along the north side of Refugio Valley Road, and a community/swim center. A second community park of 33 acres is proposed along the San Pablo Bay waterfront. This park would be an expansion of an existing East Bay Regional Park District facility. No schedule has been established for development of the proposed Hercules Waterfront Park (Jackson, 1994).

The neighborhood parks include Ohlone Park, on Turquoise Drive adjacent to Ohlone School (12.5 acres); Woodfield Park, on Lupine Road adjacent to Hercules Elementary School (3.5 acres); Foxboro Park, on Canterbury Drive (3.2 acres); Railroad Mini Park, a play area on Santa Fe Avenue (2 acres); and Beechnut Mini Park, on Beechnut Court (1 acre). A new community park, Hanna Park, is planned adjacent to the nearly complete Hanna Ranch School at the east end of Refugio Valley Road. A multi-purpose ballfield (for baseball/softball and soccer), which would occupy about six acres of the planned 11-acre park, is scheduled for construction in 1995. A child care center will likely receive funding when Hanna Ranch School begins accepting kindergarten through third-grade students (1995 or later). The remainder of the Hanna Park facilities are scheduled for funding from developer fees, although no schedule has been developed, and the availability of adequate funds is uncertain. Another community park is

scheduled for development on a city-owned site in the Forest Run neighborhood just west of I-80. This 6.25-acre park will be developed for passive recreational use with facilities such as a walking path, benches, and picnic tables (Jackson, 1994).

The City also has approximately 950 acres of trails and open space, predominately located along Refugio Creek on both sides of I-80, in the southwest portion of the City near the Historic District, and among the residential areas in Refugio Valley in the eastern portion of the City. In addition, the Refugio Valley Ranch homeowners' association owns about 320 acres of permanent open space (City of Hercules, 1993).

Existing multi-purpose ballfields in Hercules, at Ohlone and Woodfield Parks, are used to capacity by City-run sports programs, the West County Soccer Association, and the San Pablo-Pinole-Hercules Little League. The Little League is negotiating to obtain about 7 acres at the north end of Parcel 13, east of City Hall, to relocate its existing fields from Parcel 4 (Jackson, 1994).

The *General Plan* Growth Management Element contains the following minimum standards for parks and open space (per 1,000 population): 3.5 acres of community parks, 1.5 acres of neighborhood parks, and 40 acres of public and private open space. Based on a 1994 population of 18,898, the City currently provides adequate open space and approximately the minimum amount of community parkland, but does not provide adequate neighborhood parks. While the Growth Management Element standards are citywide, it should be noted that the majority of parks in Hercules are east of I-80, where the majority of residential development exists. Residential areas west of I-80 are served only by the East Bay Regional Park District waterfront park, the Railroad Mini Park, and the existing Little League fields, which could be relocated east of I-80.

The East Bay Regional Park District (EBRPD), City of Hercules, and City of Pinole, under a Joint Powers Authority, undertook a Shoreline Feasibility Study in 1986 to investigate the feasibility of developing a shoreline trail between Point Pinole in Pinole and Lone Tree Point in Rodeo, and to identify possible trail alignments. The feasibility study shows three possible trail alignments across the parcels: a pedestrian/bicycle/equestrian trail linking the shoreline and Historic Hercules to San Pablo Avenue; a boardwalk over the marsh/wetlands area south of Hercules Point; and a pedestrian trail along the inland side of the railroad parallel to the shoreline (Engineering Science, Inc., 1989). The City has adopted a trail alignment that runs along the

shoreline through the proposed Waterfront Park south of Santa Fe Avenue, runs generally eastward along the Refugio Creek Corridor, and then runs generally northeast along San Pablo Avenue to the northern city limit, as shown in the *General Plan Open Space Element*. This alignment has not been approved by the EBRPD, although the district views the future development of the Shoreline Trail through Hercules as a long-term goal, and will work with future property owners and the City towards a development agreement (Lindenmeyer, 1994).

Gas and Electric

Gas and electric service to the City of Hercules is provided by Pacific Gas & Electric Company (PG&E). The City is served by the Franklin substation which has one 60/12 kilovolt (kV) transformer bank and four 12 kV distribution circuits emanating from the substation. There are no planned major improvements to the current infrastructure. PG&E would plan improvements or capacity increases to serve additional parcels as specific development proposals are submitted. PG&E also provides energy efficiency rebates as part of an energy conservation program (Gore, 1993).

PG&E maintains two major gas transmission pipelines through Hercules. In the western part of the City the lines both parallel the Santa Fe railroad tracks to Sycamore Avenue, where they separate, with one following San Pablo Avenue and one following I-80. All undeveloped parcels in the City could be served by one of the two transmission pipelines and there are no restrictions in supply (Gore, 1993).

Communications

Telephone services are provided by Pacific Bell. These services are provided by existing underground conduit and cable, and aerial cable. Facility capabilities and design are determined by the size and requirements of the proposed development. Typically, the developer is required to provide conduit to the property line, and Pacific Bell would complete the connection to existing infrastructure. Adequate connection service currently exists in Hercules, and Pacific Bell would provide the required communication service for future development (Cox, 1993). The City's cable television operator has initiated installation of an advanced fiber optics cable system that also has high-volume data transmission capabilities. It is expected that this system will provide for state-of-the-art communications facilities for businesses along San Pablo Avenue (Jackson, 1994).

Public Works

The City performs a variety of maintenance functions, either directly by City staff or by contracting for services, including street sweeping and landscape maintenance (including Open Space Fire Mitigation). Property owners are assessed for these maintenance services, as well as for street lighting, through a Landscaping and Street Lighting benefit assessment district that encompasses about two-thirds of the City. This assessment district, created in 1984 in accordance with state law, provides for the cost of landscape maintenance and street lighting in new subdivisions. Under its provisions, the City annually develops a budget for covered services and levies an assessment to cover the projected costs.

The City also performs street and sidewalk repair and maintenance. This work is not funded through the assessment district but is paid for by General Fund revenues. Storm drain cleanout is similarly a General Fund program.

Community Development and General Government Services

The Community and Business Development Department provides planning and building services, including development information, permit processing and approval, building inspections and public works engineering. Most services other than information requests are provided on a fee-for-service basis.

General government services include functions such as the city council, city manager, city clerk, city attorney, and other services that are required for ongoing City operations but with which many citizens do not ordinarily come in contact.

IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA *Guidelines* states that a project would normally have a significant effect on the environment if it would:

- Interfere with emergency response plans or emergency evacuation plans. Based on this criterion, the proposed Land Use and Circulation Elements Update would result in a significant impact if it would allow new development without increases in staffing and equipment needed to maintain acceptable levels of fire and police service, or would result

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in a substantial need for new altered, or expanded police and fire services not met by the proposed Land Use Element Update.

- Conflict with established educational uses of the area. Appendix I of the CEQA *Guidelines* indicates that a project could have a significant effect if it would result in the need for new or altered school services. Based on these criteria, the proposed Land Use and Circulation Elements Update would result in a significant impact if it would interfere with the provision of existing or planned school services, allow new development without appropriate increases in school staffing and facilities, or result in a substantial need for new, altered or expanded school services not met by the proposed project.
- Result in the need for new or altered utility systems. Based on this criterion, implementation of the Land Use and Circulation Elements Update would result in a significant impact if it would result in a substantial need for new, altered, or expanded water, wastewater, or storm drainage systems. Appendix G of the CEQA *Guidelines* also states that a project would normally have a significant effect on the environment if it would encourage activities which result in the use of large amounts of water, use water in a wasteful manner, or substantially degrade or deplete water resources.

In general, fee-based utilities and services, such as gas and electric, telephone, and cable television, would provide for additional development through capital improvements based on service fees. Impacts to those services are considered to be less than significant, and are not discussed in this section.

- Conflict with adopted environmental plans and goals of the community where it is located, or if it would breach published national, state, or local standards relating to solid waste or litter control. Based on these criteria, implementation of the Land Use and Circulation Elements Update would result in a significant impact if it would interfere with the achievement of the waste diversion level mandated by AB 939, or result in a need for expanded solid waste services not met by the Land Use Element Update. Implementation of the Land Use and Circulation Elements Update also would result in a significant impact if it would result in development that would not meet the performance standards in the Growth Management Element of the Hercules *General Plan*.

Impacts

Impact Fire-1: Development consistent with the proposed Land Use and Circulation Elements Update would result in increased demand on the Rodeo-Hercules Fire Protection District services in the City. This would be a significant impact.

Residential and commercial development that would occur consistent with the Land Use and Circulation Elements Update would increase the resident and daytime population of the City and would increase the building square footage within Hercules. This would result in increased demand for fire suppression and other emergency response services, potentially including increased equipment and personnel.

New development would be required to continue to pay fire impact fees to mitigate impacts on the District's service capabilities. Fire impact fees would mitigate the impact of new development, and would provide a means by which new development could "buy into" the District's existing facilities and equipment that would serve newly developed as well as existing areas.

Mitigation Measure Fire-1: Mitigation Measures Proposed as Part of the Project

The following objectives or programs are contained in the proposed Land Use Element Update:

Program 2C.1: Implement the Economic Development Strategy and conduct an annual assessment of the effort [to maximize revenue generation for needed services].

Objective 3: Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and protects the quality of life in the community.

Program 3A.3: Analyze the existing public facilities and services compared to those needed to develop as provided for in this Element. Develop a plan to meet the public facility and service needs, including a financing plan.

Mitigation Measure Fire-1: Mitigation Measures identified in other *General Plan* Elements

The following measure is included in the *General Plan* Growth Management Element:

Fire Station(s) shall be located in the City so that five minutes emergency response time may be achieved by first response units for 90 percent of all emergency calls. Fire Stations shall be sized to accommodate a minimum of two (2) engines/trucks and three-person, 24-hour crews. (Growth Management Element Performance Standard III.E.1.) [The Growth Management Element states that the City will approve a development application only after making findings that applicable performance standards will be met.]

The following measures are policies or implementation programs in the *General Plan* Safety/Seismic Safety Element:

Policy VI.C.14.d.1: The City should continually evaluate the alternatives for providing adequate fire service to meet the changing needs of the City in the most efficient manner.

Policy VI.C.14.d.3: Neighborhood plans should include measures to promote fire safety including:

- aa) Road circulation for fire access.
- bb) Access to structures and open spaces.
- cc) Fire flow needs.
- dd) Landscape design.

Policy VI.C.14.d.4: Open spaces should be planned to provide:

- aa) A buffer of irrigated landscaping and/or plowed area maintained between open spaces and developed areas.
- bb) Fire access trails in major open spaces to allow fire equipment to penetrate. These trails should be part of the City-wide system of trails.
- cc) The use of fire resistant plant materials in open space landscaping.
- dd) Containment of potential fires where natural vegetation exists in open spaces.

Implementation Program VI.D.2.a: *Planning Review:* Specific plans must be prepared and adopted for each neighborhood in the City prior to approval of development plans. Safety measures will be incorporated into these specific plans to provide adequate protection from seismic, geologic and fire hazards.

The review and approval of zoning applications, tentative maps and planned unit developments will include consideration of safety policies and standards in the General Plan, neighborhood plans or other specific plans.

Implementation Program VI.D.2.b: *Subdivision and Grading Regulations:* The subdivision and grading of land, and designing and construction of site improvements. Seismic, geologic and fire hazards will be considered in review and approval of tract maps, grading and improvement plans.

Implementation Program VI.D.2.e: The Capital Improvements Program is a five-year program for municipal capital expenditures. Capital improvements which promote safety in the City, such as a fire station, will be evaluated and ranked with the other needs in the community.

Impact Fire-1: Additional Mitigation Measures Identified in this EIR

The City shall add the following policies or implementation programs to the Land Use Element Update:

Fire-1a: The City shall assist the Rodeo-Hercules Fire Protection District in processing the collection of fire impact fees from all new development within the District.

Fire-1b: The City shall work with the Rodeo-Hercules Fire Protection District to determine specific needs for fire protection when a particular development proposal is reviewed and ensure the District's needs are met.

Impact Fire-1: Significance After Mitigation

Implementation of the above mitigation measures would ensure adequate fire safety and service, and would reduce the project's impact on the Rodeo-Hercules Fire Protection District to a less-than-significant level.

Impact Police-1: Development consistent with the proposed Land Use and Circulation Elements Update would result in increased demand on police services in the City. This would be a significant impact.

The Hercules Police Department estimates that development that would occur consistent with the Land Use and Circulation Elements Update would generate a need for six additional sworn officers and 3.5 additional support staff. Four additional fully equipped patrol cars also would be required to patrol the study area. Development of the project could also require expansion of the existing police station.

Service demand from the California Highway Patrol, East Bay Regional Park District and the Coast Guard could also increase, as additional development could increase the number of freeway, park and water emergency calls.

Impact Police-1: Mitigation Measures Proposed as Part of the Project

The following objectives or programs are contained in the proposed Land Use Element Update:

Program 2C.1: Implement the Economic Development Strategy and conduct an annual assessment of the effort [to maximize revenue generation for needed services].

Objective 3: Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and protects the quality of life in the community.

Program 3A.3: Analyze the existing public facilities and services compared to those needed to develop as provided for in this Element. Develop a plan to meet the public facility and service needs, including a financing plan.

Impact Police-1: Mitigation Measures identified in other *General Plan* Elements

The following measure is included in the *General Plan* Growth Management Element:

Office and supporting facilities shall be provided in a central, headquarters facility. Communication equipment (including repeater stations) shall be provided to allow communication between dispatch and police units throughout the service area. (Growth Management Element Performance Standard III.E.2.) [The Growth Management Element states that the City will approve a development application only after making findings that applicable performance standards will be met.]

The following measure is from policies or implementation program in the *General Plan* Seismic/Safety Element.

Implementation Program VI.D.2.e, identified as mitigation for Impact Fire-1.

The following measure is an objective in the *General Plan* Economic Development Element.

Objective II.C.2: Maximize the collection of existing revenue and adopt new on-going revenues, as needed, to continue providing quality City services; and, maintain and promote efficiency in City operations.

Impact Police-1: Mitigation Measures Identified in this EIR

None identified.

Impact Police-1: Significance After Mitigation

The mitigation measures identified above would help ensure adequate police staffing and equipment levels. Based on the results of the fiscal analysis (see Appendix F), development that would result from the project would likely generate adequate revenue to meet the Police Department's projected staffing and equipment needs and, therefore, would reduce the impact to less-than-significant levels.

Impact Schools-1: Development consistent with the proposed Land Use and Circulation Elements Update would increase the number of students served by the West Contra Costa Unified School District. This would be a significant impact.

The West Contra Costa Unified School District uses a student generation factor of 0.33 students overall per multi-family household in Hercules. This generation factor is about 28 percent of the Hercules single-family generation rate, and reflects the typically smaller number of children in multi-family housing, compared to single-family housing. The proposed Land Use Element Update would result in the addition of approximately 3,816 households. Using this methodology, approximately 1,260 additional students would attend schools in Hercules at buildout.

The future student capacity would accommodate approximately 5,858 students (3,508 existing capacity plus 2,350 from the new schools). Adding 1,260 students that would be generated by the additional households to the current enrollment of approximately 5,060 students results in total enrollment of approximately 6,320. The future school capacity in Hercules would be

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exceeded by approximately 465 students. This would likely warrant the construction of at least one additional school, most likely an elementary school. Existing elementary school enrollment is already greater than future capacity with the new Hanna Ranch School that is scheduled to open in January 1995, while middle and high schools would have adequate future capacity if the planned middle school/high school were constructed. Future elementary school capacity would be about 1,035 students short of enrollment with project buildout (see Table IV.F.3). It is possible that additional school(s) could be designated to accept Hercules students. However, the West Contra Costa Unified School District does not have excess capacity on a district-wide basis, and is not projected to have excess or adequate capacity in 2010.

TABLE IV.F.3: PROJECTED SCHOOL CAPACITIES AND ENROLLMENTS, 2010 /a/

School	Enrollment			Future Capacity	Surplus (Deficit)
	Existing	Project	Total		
Elementary Schools (4)	2,010	690	2,700	1,666	(1,034)
Middle Schools (2)	952	190	1,142	1,383	241
High Schools (2)	<u>2,099</u>	<u>380</u>	<u>2,479</u>	<u>2,809</u>	<u>330</u>
TOTALS	5,061	1,260	6,321	5,858	(463)

/a/ Assumes opening of Hanna Ranch Elementary School (capacity 650) and a new middle school-senior high school (capacity 800 middle school, 900 high school). Assumes no changes in capacity at existing schools, and assumes Ohlone Elementary continues on year-round sessions.

SOURCE: Burkhart, 1994, Environmental Science Associates.

The West Contra Costa Unified School District estimates the following school construction costs: \$20,975 per student for an elementary school; \$27,352 per student for a junior high school; and \$32,815 per student for a high school. Some of this money would be collected from development fees for new development, but development fees (except for projects requiring legislative action, such as a *General Plan* amendment) are capped by state law at \$1.72 per square foot for residential development and \$0.28 per square foot for commercial/industrial development. Assuming an average multi-family unit of 1,000 sq. ft. and the current development fee, the project would generate about \$8.0 million in development fees by the time

of buildout in 2010, less than the approximately \$12.5 million required to fund construction of a 600-student elementary school. In addition, much of the fee revenue collected would finance use of portable classrooms and construction of the planned middle school/high school (Burkhart, 1994).

With an additional increase in population of about 500 due to approved and reasonably foreseeable development (but excluding Franklin Canyon, which is in the John Swett Unified School District), elementary school enrollment would exceed capacity by about 1,100 students.

Impact Schools-1: Mitigation Measures Proposed as Part of Project

The following objectives or programs are contained in the proposed Land Use Element Update:

Program 2C.1: Implement the Economic Development Strategy and conduct an annual assessment of the effort [to maximize revenue generation for needed services].

Objective 3: Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and protects the quality of life in the community.

Program 3A.3: Analyze the existing public facilities and services compared to those needed to develop as provided for in this Element. Develop a plan to meet the public facility and service needs, including a financing plan.

Impact Schools-1: Mitigation Measures identified in other *General Plan* Elements

None identified.

Impact Schools-1: Mitigation Measures Identified in this EIR

Schools-1a: For specific development proposals that require legislative action (*e.g.*, *General Plan* Amendment, adoption of Specific Plan, amendment to Zoning Ordinance) and that would have a substantial effect on school facilities through a projected increase in enrollment, the City shall enter into consultation with the West Contra Costa Unified School District and the project proponent(s) to determine whether there can be determined a mutually agreeable contribution to the school district by the proponent(s) (including, but not limited to cash payment, land dedication, and/or provision of school facilities) to offset the impacts of increased enrollment. For such development proposals requiring legislative action, the City shall consider imposition of a development fee that is greater than that required for non-legislative proposals, if such fee is justified by economic analysis.

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Schools-1b: In the case of new residential developments having a significant impact on school facilities, the City shall take steps to ensure that developers in each case coordinate and work closely with the District (via the City) regarding timely and proper submittal of the required development impact fees.

Impact Schools-1: Significance After Mitigation

Implementation of the above mitigation measures would reduce the impacts on public school facilities by providing some funding to offset projected increases in enrollment. However, the above measures would not ensure adequate funding and thus would not ensure the elimination of unmet demand in school enrollment. Therefore, this would remain a significant, unavoidable impact.

Impact Water-1: Development consistent with the Land Use and Circulation Elements Update would increase demand for potable water and could require additional delivery and/or storage facilities. This would be a significant impact.

The projected growth in population and employment would place an increased demand on East Bay Municipal Utility District (EBMUD) water resources supplied by existing pressure zones, filter plants and aqueducts. Approved and reasonably foreseeable development would generate additional demand for potable water. As stated in the Setting, potable water is supplied to new development based on a system capacity charge that offsets the cost of new improvements. EBMUD would be able to supply potable water to all parcels in the City, barring drought emergencies. All parcels are located within EBMUD's service area (Hoolihan, 1993).

As noted in the Setting, EBMUD has scheduled capital water improvements (i.e., storage systems, reservoirs, pumping plants) based on ABAG's *Projections '90* household projections. Under ABAG's *Projections '90* for the year 2010, the City would have approximately 7,585 households. Buildout under the proposed Land Use Element would result in a total of approximately 10,160 households, or about 2,575 more households (34 percent) than EBMUD has assumed in scheduling capital improvements. Existing and reasonably foreseeable development could result in a total of about 11,125 households. This larger increase in households, combined with the greater intensity of commercial development proposed in the Land Use Element Update compared to the existing *General Plan*, could generate the need for improvements in facilities for potable water storage, treatment and pumping, as well as new distribution and transmission pipelines. As noted in the Setting, EBMUD expects to update its

master plan for the service area that includes Hercules by 1996. Adjustment of the system capacity charge could be required to fund necessary distribution system improvements.

Impact Water-1: Mitigation Measures Proposed as Part of the Project

The following objectives or programs are contained in the proposed Land Use Element Update:

Program 2C.1: Implement the Economic Development Strategy and conduct an annual assessment of the effort [to maximize revenue generation for needed services].

Objective 3: Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and protects the quality of life in the community.

Program 3A.3: Analyze the existing public facilities and services compared to those needed to develop as provided for in this Element. Develop a plan to meet the public facility and service needs, including a financing plan.

Impact Water-1: Mitigation Measures identified in other *General Plan* Elements

The following measure is included in the *General Plan* Growth Management Element:

Capability to provide potable water supply to all residential and non-residential developments. (Growth Management Element Performance Standard III.E.6.) [The Growth Management Element states that the City will approve a development application only after making findings that applicable performance standards will be met.]

The following measure is included in the *General Plan* Open Space/Conservation Element.

The City should develop a reclamation policy and plan which would ensure the full realization of any future potential. The plan should provide for system development and right-of-way easement conservation. (Open/Space Conservation Element, V.B.2.b)

The Hercules area is part of EBMUD's Reclaimed Wastewater Master Plan. However, a recent District study found that the use of reclaimed wastewater in Hercules is not financially feasible at this time because of the high level of treatment that would be required for potential industrial water users (Stigers, 1994).

Impact Water-1: Additional Mitigation Measures Identified in this EIR

Water-1a: The City shall include in the proposed Land Use Element Update the following programs under Policy 3A:

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- Ensure that the new development pays its share of the costs associated with the provision of facilities for water by attaching project-specific mitigation requirements as conditions of approval.
- The City shall cooperate with East Bay Municipal Utility District planning efforts to help ensure an adequate water system for existing and future residents and to maintain adequate water reserves.
- Encourage effective water conservation practices by residents and businesses including household conservation and use of drought-resistant landscaping and reclaimed wastewater.
- The City will practice water conservation in management of parks and requirements for landscape design development.

The City shall condition approval of individual development proposals on the following implementation programs:

Water-1b: The City shall require the installation of low-flush toilets and other low-flow plumbing fixtures for new residential and commercial development.

Impact Water-1: Significance After Mitigation

Implementation of the above mitigation measures would reduce the impact of potable water demand and on water delivery facilities to a less-than-significant level.

Impact Wastewater-1: Development consistent with the proposed Land Use and Circulation Elements Update would increase the demand for wastewater treatment. This would be a significant impact.

The City of Hercules' projected growth at 2010 would increase the average daily wastewater flow demand by about 2.1 mgd AWWF. The increase in wastewater treatment demand would require further improvements to existing treatment facilities beyond those currently planned, acquiring excess capacity from the Rodeo Sanitation District, or the construction of a solids removal plant. The City has indicated that the options include one of the following: to develop a package plant that would be used to remove solids; to upgrade the Pinole-Hercules Wastewater Treatment Plant to increase capacity; and to double or triple the treatment capacity of the Hercules Plant. Improvements to the collection (sewer lines) that would serve new development would be made by property owners and/or developers.

Because the existing wastewater treatment plants would not accommodate flows generated by buildout of the proposed Land Use Element Update, and the City has not formalized plans for sufficient increased treatment capacity, this impact would be significant.

Impact Wastewater-1: Mitigation Measures proposed as part of the project

The following objectives or programs are contained in the proposed Land Use Element Update:

Program 2C.1: Implement the Economic Development Strategy and conduct an annual assessment of the effort [to maximize revenue generation for needed services].

Objective 3: Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and protects the quality of life in the community.

Program 3A.3: Analyze the existing public facilities and services compared to those needed to develop as provided for in this Element. Develop a plan to meet the public facility and service needs, including a financing plan.

Impact Wastewater-1: Mitigation Measures identified in other *General Plan* Elements

The following measure is included in the *General Plan* Growth Management Element:

Capability to transmit and treat wastewater from all residential and non-residential developments to standards set by the Regional Water Quality Control Board. (Growth Management Element Performance Standard III.E.4.) [The Growth Management Element states that the City will approve a development application only after making findings that applicable performance standards will be met.]

The following measure is an objective in the *General Plan* Economic Development Element.

Objective II.C.2: Maximize the collection of existing revenue and adopt new on-going revenues, as needed, to continue providing quality City services; and, maintain and promote efficiency in City operations.

The following measure is an implementation program in the *General Plan* Economic Development Element.

Program III.A.1: Review alternatives for providing new wastewater treatment capacity and develop new capacity (including the potential for obtaining capacity from adjacent facilities, identification of preferred treatment technology, identification of preferred financing method, environmental review, design and construction). [The Growth Management Element called for improvements to be complete by 1993.]

Impact Wastewater-1: Mitigation Measures Identified in this EIR

Wastewater-1a: The City shall include in the proposed Land Use Element Update the following program under Policy 3A:

- The City shall ensure that new development funds its share of the costs associated with the provision of wastewater treatment facilities by attaching project-specific mitigation as conditions of approval.

Prior to development on any of the parcels, the City shall implement the following programs:

Wastewater-1b: The City shall initiate the wastewater treatment study discussed above, and shall implement programs to ensure adequate wastewater treatment capacity prior to approval of development that would generate demand for treatment in excess of capacity, including increased capacity improvements now planned. This study shall include the following information:

- Inventory of existing facilities, including collection systems, treatment plants, and pumping stations. [This inventory has been accomplished as part of the planning for improvements described in the Setting.]
- An alternative analysis of the City's three options to treat additional wastewater expected at buildout of the proposed Land Use Element Update.
- Identification of funding sources.
- Coordination with the City of Pinole, EBMUD and other agencies involved in wastewater treatment and/or water reclamation.
- Appropriate uses of reclaimed water within the City.

Wastewater-1c: The City shall implement a Capital Improvement Program (CIP) for the selected wastewater treatment alternative(s). The CIP shall include funding, scheduling and development programs for the selected alternative.

The City is currently evaluating the possibility of creating an assessment district to fund further increases in wastewater treatment capacity beyond those currently planned (as discussed in the Setting portion of this section). This district would be expected to encompass many of the parcels included in the Land Use Element Update. Developer fees collected under the district would fund wastewater treatment improvements.

Impact Wastewater-1: Significance After Mitigation

Implementation of the above mitigation measures would reduce this impact to a less-than-significant level.

Impact Storm Drainage-1: Development consistent with the proposed Land Use and Circulation Elements Update would increase the demand for stormwater collection and, potentially, treatment. This would not be a significant impact.

Development consistent with the Land Use Element Update would increase the amount of impervious surfaces in the study area, increasing the amount of stormwater runoff. New roadways constructed under the Circulation Element Update would similarly increase impervious surface area, and would result in increased runoff containing urban pollutants (grease, oil, rubber fragments, etc.). Parking lots at new development sites would also contribute urban pollutants to stormwater runoff.

The City would comply with all NPDES requirements for stormwater treatment in effect at the time of approval of specific projects.

Impact Storm Drainage-1: Mitigation Measures proposed as part of the project

The following objectives or programs are contained in the proposed Land Use Element Update:

Program 2C.1: Implement the Economic Development Strategy and conduct an annual assessment of the effort [to maximize revenue generation for needed services].

Objective 3: Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and protects the quality of life in the community.

Program 3A.3: Analyze the existing public facilities and services compared to those needed to develop as provided for in this Element. Develop a plan to meet the public facility and service needs, including a financing plan.

Impact Storm Drainage-1: Mitigation Measures identified in other *General Plan* Elements

The following measure is included in the *General Plan* Growth Management Element:

Meet federal NPDES requirements for stormwater runoff. (Growth Management Element Performance Standard III.E.5.) [The Growth Management Element states that the City will approve a development application only after making findings that applicable performance standards will be met.]

The following measure is an objective in the *General Plan* Economic Development Element.

Objective II.C.2: Maximize the collection of existing revenue and adopt new on-going revenues, as needed, to continue providing quality City services; and, maintain and promote efficiency in City operations.

Impact Storm Drainage-1: Mitigation Measures Identified in this EIR

Storm Drainage--1a: The City shall include in the proposed Land Use Element Update the following program under Policy 3A:

- The City shall ensure that new development funds its share of the costs associated with the provision of storm drainage facilities by attaching project-specific mitigation as conditions of approval.

The City shall condition approval of individual development proposals on the following implementation programs (identified in the Hydrology and Water Quality analysis in this report [Section IV.I]):

Storm Drainage-1b: The City shall review and refine, as necessary, its Master Drainage Plan, including specifics for drainage on individual parcels (except those such as Parcel 6 which already have a drainage infrastructure), prior to approval of any development in the study area. This is an important measure since the City's wastewater system is at capacity, and since new drainage infrastructure would have to be built to accommodate the increase in runoff.

Storm Drainage-1c: Develop a Master Water Quality Control Plan for the City, including measures to clean up existing contaminated water resources in various parcels, to identify and remove or mitigate existing sources of pollution, and to develop ways of preventing further pollution such as specific water treatment policies for industries and retention basins for surface runoff suspected of carrying roadway pollutants. Such a plan must be approved by the City Engineer and should be reviewed by the Regional Water Quality Control Board and State Department of Water Resources for correctness and thoroughness, prior to implementation.

Storm Drainage-1d: Develop a set of best management practices (BMPs) for developers to follow.

Impact Storm Drainage-1: Significance After Mitigation

Implementation of the above mitigation measures would reduce this impact to a less-than-significant level.

Impact Solid Waste-1: Development consistent with the Land Use and Circulation Elements Update would increase the demand for solid waste services. This would not be a significant impact.

The population increase of approximately 11,639 people and additional commercial businesses expected under the Land Use Element Update would create the need for additional solid waste pickup and disposal services, and would result in an increase in the amount of waste requiring landfilling. Assuming a constant rate of waste generation per capita, buildout under the Land Use Element Update could increase the flow of solid waste from the City to area landfills by approximately 64 percent. When the West Contra Costa Sanitary Landfill closes, solid waste will be taken to either the Potrero Hills Landfill or Keller Canyon Landfill. Both landfills have built-in growth factors to accommodate future waste generated in the City (Burch, 1993).

Continued implementation of the City's recycling program could offset at least part of this increase, through increased rates of recycling. The City's Source Reduction and Recycling Element contains programs to reduce the amount of solid waste. Because adequate disposal capacity exists and the City has implemented a Source Reduction and Recycling Element, this would be a less than significant impact.

Impact Solid Waste-1: Mitigation Measures Proposed as Part of the Project

The following objectives or programs are contained in the proposed Land Use Element Update:

Program 2C.1: Implement the Economic Development Strategy and conduct an annual assessment of the effort [to maximize revenue generation for needed services].

Objective 3: Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and protects the quality of life in the community.

Program 3A.3: Analyze the existing public facilities and services compared to those needed to develop as provided for in this Element. Develop a plan to meet the public facility and service needs, including a financing plan.

Impact Solid Waste-1: Mitigation Measures identified in other *General Plan* Elements

The following measure is an implementation program in the *General Plan* Economic Development Element.

Program III.E.5: The City of Hercules will continue to work with other cities in the County to site one or more new County-wide landfills, and to implement the requirements of Assembly Bill 939.

Impact Solid Waste-1: Mitigation Measures Identified in this EIR

The City shall condition approval of individual development projects on the following mitigation measure:

Solid Waste-1a: Prior to development on any of the 24 parcels, the City shall consult with Richmond Sanitary Service to confirm that adequate capacity exists for solid waste that would be generated by the project.

Solid Waste-1b: Prior to development on any of the 24 parcels, the City shall require that project sponsor(s) demonstrate that projects include adequate recycling facilities.

Impact Solid Waste-1: Significance After Mitigation

Although no mitigation is required, the above measure would ensure future availability of a landfill for the City's solid waste. The impact would remain at a less-than-significant level.

Impact Park-1: Development consistent with the Land Use and Circulation Elements Update would increase the need for neighborhood and community parks. This would be a significant impact.

As noted in the Setting, the City currently has adequate land devoted to neighborhood parks and open space, based on the standards in the *General Plan* Growth Management Element.

However, the City currently has inadequate land devoted to community parks. In addition, as noted in the Setting, the majority of parks in Hercules are east of I-80, where most residential development is located, and residential areas west of I-80 are less well served.

Under buildout of the proposed Land Use Element, the City would have approximately 29,927 people, resulting in the need for about 105 acres of community parks, about 45 acres of neighborhood parks, and about 1,200 acres of open space to meet the Growth Management Element standard. Assuming that the 33-acre Waterfront Park and the approximately 58-acre Refugio Creek open space corridor were developed by the time of buildout under the proposed Land Use Element, the City would have about 157 acres of community parkland, which would meet the Growth Management Element standard. The existing 1,270 acres of open space also would meet the Growth Management Element standard, which would require 1,200 acres.

Assuming the 11-acre Hanna Ranch Park and the 6-acre Forest Run Park were developed by buildout, the City would have about 39 acres of neighborhood parks, which would not meet the Growth Management Element standard of 45 acres. It should be noted that the bulk of the residential development that would occur with the project (all but about 500 units on Parcel 13) would occur west of I-80. This would further aggravate the existing condition in which residential areas west of I-80 are separated from most parks by the I-80 freeway. As noted in the Setting, however, the Growth Management Element standards for parks are citywide.

Population growth that would occur with the Land Use Element Update would require development of one additional multi-purpose ballfield in addition to that proposed for Hanna Ranch Park. Neither the proposed Waterfront Park nor the proposed Forest Run Park could accommodate a ballfield, and no other parks are proposed. Without developer dedication of parkland or an identification of an additional source of funding, there would be a shortfall of recreation facilities in Hercules (Jackson, 1994). The City could obtain additional parkland as part of a development agreement with specific developer(s).

With an additional increase in population of about 2,800 due to approved and reasonably foreseeable development, there would be a deficit of about 10.5 acres of neighborhood parkland and about 50 acres of open space. Community parkland would be adequate to meet the Growth Management Element standard.

In addition to park facilities, increased demand for City-subsidized recreation programs, especially for senior citizens and teenagers, would be expected with the project.

Impact Park-1: Mitigation Measures Proposed as Part of the Project

The following objectives or programs are contained in the proposed Land Use Element Update:

Program 2C.1: Implement the Economic Development Strategy and conduct an annual assessment of the effort [to maximize revenue generation for needed services].

Objective 3: Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and protects the quality of life in the community.

Program 3A.3: Analyze the existing public facilities and services compared to those needed to develop as provided for in this Element. Develop a plan to meet the public facility and service needs, including a financing plan.

Objective 14: Protect and enhance significant environmental attributes and features.

Policy 14A: Develop trail systems, open space, and other amenities that benefit the quality of life in the community.

Program 14A.1: Establish a strong and continuous system of trail links between the hills in the southeastern end of Refugio Valley and San Pablo Bay.

Program 14A.2: Establish a trail linkage between Pinole and Rodeo as part of the regional bay access trail, without encroaching upon private property or bluffs within the Hercules Industrial area.

Program 14A.3: Continue to improve and protect Refugio Creek as a major environmental amenity.

Impact Park-1: Mitigation Measures identified in other *General Plan* Elements

The following measures are included in the *General Plan* Growth Management Element:

A minimum of 1.5 acres of neighborhood parks shall be provided for each 1,000 residents.

A minimum of 3.5 acres of community parks shall be provided for each 1,000 residents.

A minimum of 40 acres of open space (public and private combined) shall be provided for each 1,000 residents. (Growth Management Element Performance Standard III.E.3.) [The Growth Management Element states that the City will approve a development application only after making findings that applicable performance standards will be met.]

The following measures are included in the *General Plan* Open Space/Conservation Element:

The City should develop a master drainage plan [for Refugio Creek] which provides for :

the definition and conservation of existing drainage courses of high aesthetic value (Open Space/Conservation Element, V.B.3.b.1) [also appears as mitigation in Section IV.E, Visual Quality];

the maximum utilization of these drainage courses for buffers, open space, pedestrian circulation, recreation, aesthetics, flood control, etc. (Open Space/Conservation Element, V.B.3.b.3) [also appears as mitigation in Section IV.E, Visual Quality];

the enhancement of these drainage courses with landscaping, remedial measures and improved public access. The City should also develop ordinances and enforcement mechanism which will preserve, develop and maintain these drainage courses (Open Space/Conservation Element, V.B.3.b.4) [also appears as mitigation in Section IV.E, Visual Quality].

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Develop a plan for the preservation of open space within the community (Open Space/Conservation Element Objective 1a).

Incorporate conservation areas such as drainage courses, areas of natural vegetation and baylands into the open space system (Open Space/Conservation Element Objective 1c).

Provide for the linkage of public and private open spaces through the community (Open Space/Conservation Element Objective 1d).

All General Plan and zoning proposals will be reviewed in terms of the goals and proposals established in [the Open Space/Conservation] Element. Those areas where there is a potential effect on open space and conservation will receive special attention in subsequent planning and design reviews (Open Space/Conservation Element, Community Development Requirement V.D.2.a).

Proposed neighborhood plans will be reviewed in terms of opportunities for conserving and enhancing the natural environment and creating development that is compatible with the open space system (Open Space/Conservation Element, Community Development Requirement V.D.2.b).

Tentative maps and PUD's will incorporate urban design techniques to take advantage of the existing environmental qualities of sites being developed within the City (Open Space/Conservation Element, Community Development Requirement V.D.2.c).

The following measure is an objective in the *General Plan* Economic Development Element.

Objective II.C.2: Maximize the collection of existing revenue and adopt new on-going revenues, as needed, to continue providing quality City services; and, maintain and promote efficiency in City operations.

Impact Park-1: Mitigation Measures Identified in this EIR

The City shall incorporate the following policies into the proposed Land Use Element Update:

Park-1a: The City shall continue to work closely with the East Bay Regional Park District (EBRPD) in implementing the Shoreline Trail through Hercules.

Park-1b: The City shall ensure that new development funds its share of costs associated with the provision of park facilities by attaching project-specific mitigation as conditions of approval.

Park-1c: The City shall consider development agreements that would provide additional community parks and recreation facilities, such as ballfields and other areas for organized recreation, in exchange for allowing development at greater than the "typical" FAR, as specified in the proposed Land Use Element Update,

Impact Park-1: Significance After Mitigation

If the City were successful in negotiating development agreements to provide additional recreation facilities, this impact would be fully mitigated. However, in the absence of an assurance that adequate recreation facilities would be provided, this is considered a significant, unavoidable impact.

Public Works

Impact Public Works-1: Development consistent with the Land Use and Circulation Elements Update would increase the demand for street maintenance and other public works services. This would not be a significant impact.

Street and sidewalk maintenance would increase with construction of approximately 5.5 lane miles of new City streets that would be expected to be constructed by 2010. An additional maintenance employee could be required to provide street maintenance and other services. This impact would be economic, and would be expected to be offset by fees and taxes collected, principally an increase in sales tax that would result from commercial development anticipated with the project.

Demand for other public works services, including street sweeping and landscape maintenance and street lighting, would be expected to be provided through the Landscaping and Street Lighting district. (Expansion of the district to include the study area parcels would be required.) See Appendix F, Fiscal Analysis of the Proposed Land Use Element Update, for additional information on public works impacts.

Impact Public Works-1: Mitigation Measures Proposed as Part of the Project

The following objectives or programs are contained in the proposed Land Use Element Update:

Program 2C.1: Implement the Economic Development Strategy and conduct an annual assessment of the effort [to maximize revenue generation for needed services].

Objective 3: Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and protects the quality of life in the community.

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Program 3A.3: Analyze the existing public facilities and services compared to those needed to develop as provided for in this Element. Develop a plan to meet the public facility and service needs, including a financing plan.

Impact Public Works-1: Mitigation Measures identified in other *General Plan* Elements

The following measure is an objective in the *General Plan* Economic Development Element.

Objective II.C.2: Maximize the collection of existing revenue and adopt new on-going revenues, as needed, to continue providing quality City services; and, maintain and promote efficiency in City operations.

Impact Public Works-1: Mitigation Measures Identified in this EIR

Prior to project approval, the City would initiate expansion of the Landscaping and Street Lighting benefit assessment district to encompass all study area parcels not currently included within the district.

Impact Public Works-1: Significance After Mitigation

With implementation of the above measures, adequate funding would be ensured for public works services, and the impact would be reduced to a less-than-significant level.

Community Development and General Government

Impact Government-1: Development consistent with the Land Use and Circulation Elements Update would increase the demand for community development and general government services. This would not be a significant impact.

While the City would be expected to provide similar community development and general government services with implementation of the project, the increased population and employment would increase the demand for certain services, and the increase is anticipated to require the addition of new City staff including an accountant in the finance department, a full-time deputy city manager, a full-time personnel technician, and an assistant city clerk. There would be no direct physical impact; rather, the impact would be economic, and would be expected to be offset by fees and taxes collected, principally an increase in sales tax that would result from commercial development anticipated with the project. See Appendix F, Fiscal Analysis of the Proposed Land Use Element Update, for additional information on Community Development and General Government impacts.

Impact Government-1: Mitigation Measures Proposed as Part of the Project

The following objectives or programs are contained in the proposed Land Use Element Update:

Program 2C.1: Implement the Economic Development Strategy and conduct an annual assessment of the effort [to maximize revenue generation for needed services].

Objective 3: Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and protects the quality of life in the community.

Program 3A.3: Analyze the existing public facilities and services compared to those needed to develop as provided for in this Element. Develop a plan to meet the public facility and service needs, including a financing plan.

Impact Government-1: Mitigation Measures identified in other *General Plan* Elements

The following measure is an objective in the *General Plan* Economic Development Element.

Objective II.C.2: Maximize the collection of existing revenue and adopt new on-going revenues, as needed, to continue providing quality City services; and, maintain and promote efficiency in City operations.

Impact Government-1: Mitigation Measures Identified in this EIR

None identified.

Impact Government-1: Significance After Mitigation

Less than significant.

REFERENCES - Public Services and Utilities

Burch, Larry, Director of Environmental Management, Richmond Sanitary Service, letter, August 18, 1993.

Burkhart, Cate, Facilities Planner, West Contra Costa Unified School District, letters, October 12, 1993 and November 21, 1994, and telephone conversations, July 19, October 13 and November 3, 1994.

City of Hercules, *General Plan* Open Space/Conservation Element, 1990.

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City of Hercules, Source Reduction and Recycling Element, November, 1991.

Cox, Robert, Engineer, East Shore Pacific Bell, telephone conversation, October 1, 1993.

Eaves, John, Sergeant, Hercules Police Department, letter, August 20, 1993.

Freitas, Donald, Stormwater Pollution Control Manager, Contra Costa County Department of Public Works, telephone conversation, November 22, 1993.

Gore, Nat, Division Gas Engineer, Pacific Gas & Electric, telephone conversation, November 17, 1993.

Hoolihan, John, Senior Civil Engineer, East Bay Municipal Utility District, telephone conversations, October 1, 1993, and November 29, 1994.

Jackson, Connie, Deputy City Manager/Parks and Recreation Director, City of Hercules, telephone conversation, October 11, 1994.

Lindenmeyer, Tom, Environmental Specialist, East Bay Regional Park District, telephone conversation, April 20, 1994.

Richardson, Ron, City Engineer / Director of Public Works, telephone conversations, October 1, 1993, and April 22, 1994.

Salmi, Dennis, Assistant Chief, Rodeo - Hercules Fire Protection District, letter, August 10, 1993.

Stigers, Tracy, Chief Engineer, Brown and Caldwell, telephone conversation, October 4, 1994.

G. HAZARDOUS MATERIALS

SETTING

Hazardous materials, if handled improperly, pose potential risks to human health and safety and to the environment. This section considers environmental issues of health and safety relating to handling of hazardous materials and generation of hazardous wastes. The information presented is based primarily on current federal, state and local regulations that govern handling of hazardous materials and wastes, on chemical, physical, and toxic properties of substances having frequent industrial applications, and on current conditions within the project area.

Definitions

Certain chemical and physical properties of substances may cause them to be considered hazardous. Under Title 22 of the California Code of Regulations (CCR), a hazardous material is defined as a substance or combination of substances, which because of quantity, concentration, or physical, chemical or infectious characteristics, may either:

- (1) cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating, illness; or
- (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed. (CCR, Title 22, Article 2, Section 66260.10; Contra Costa County, 1989)

Hazardous wastes are defined in the same manner. Hazardous wastes are hazardous materials that no longer have practical use, such as substances that have been typically discarded, discharged, spilled, contaminated, or are being stored prior to proper disposal. According to CCR Title 22, hazardous materials and hazardous wastes are classified according to four properties: toxic, ignitable, corrosive, and reactive (CCR, Title 22, Chapter 11, Article 3).

Toxic substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability, or even death. For example, toxic substances can cause disorientation, headaches, acute allergic reactions, asphyxiation, skin irritation, or other adverse health effects if human exposure exceeds certain levels (the level depends on the substance involved). Carcinogens (substances known to cause cancer) are a special class of toxic substances. Examples of toxic substances include most heavy metals, pesticides, and benzene (a component of gasoline). *Ignitable substances* are hazardous because of their flammable

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properties. Gasoline and natural gas are examples of ignitable substances. *Corrosive substances* can damage other materials or cause severe burns upon contact. Examples include strong acids and bases such as sulfuric (battery) acid or lye. *Reactive substances* may cause explosions or generate gases or fumes. Explosives and unstable chemicals are examples of reactive materials. Contaminated soil is not necessarily hazardous waste. Soils are considered contaminated when they contain elevated (above background) levels of a chemical substance and have the potential to cause human health effects or adversely affect the natural environment. Contaminated soil would be considered a hazardous waste if it exceeded any of a number of specific CCR Title 22 criteria. Remediation (cleanup and proper disposal) of hazardous wastes found at a contaminated site is required if excavation of those materials is performed. Cleanup requirements typically are determined on a case-by-case basis by the agency taking lead jurisdiction.

Hazard vs. Risk

Worker and public health are potentially at risk whenever hazardous materials are used. It is necessary to differentiate between the "hazard" of these materials and the "risk" they pose to human health or the environment. A hazardous situation is one that has the potential to cause damage upon upset or exposure. The risk of an event is determined by a combination of (1) the probability of exposure to the hazardous material and (2) the severity of consequences should exposure occur (California Office of Emergency Services, 1989). In other words, the likelihood of exposure to the hazardous material coupled with its inherent hazardous properties determine the degree of risk to health or the environment. To be of high risk, exposure to a hazardous material must be both likely and consequential.

Means of Exposure

Exposure of the public to hazardous materials or wastes could occur in several ways:

- improper handling or use of hazardous materials during the course of business,
- failure of storage containment systems,
- fire, explosion, or other emergencies,
- unsound disposal / treatment methods, or
- upsets during transport.

Pathways of Exposure

Pathways of exposure to hazardous waste depend on the chemical and physical properties of the waste and the type of accident that released it. The four common exposure pathways are inhalation, ingestion, direct contact (with skin or eyes), and injection (skin puncture or cut):

- Inhalation (breathing the hazardous substance) is the primary route of exposure for toxic fumes or vapors and is the primary exposure pathway at a distance.
- Ingestion (swallowing the hazardous substance) would not be expected to occur at an industrial facility unless persons practiced poor personal hygiene or were exposed to contaminated food or water. Inhaled substances are often eventually swallowed.
- Direct bodily contact requires immediate proximity to the hazardous solid or liquid. Skin or eye contact with hazardous fumes or vapors can also occur over distance.
- Injection (puncturing the skin with a sharp, contaminated object) typically is a threat only to persons handling unpackaged or improperly packaged hazardous materials.

Factors that influence the health effects of exposure to hazardous material include the dose to which the person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility. A material may be hazardous by one exposure pathway but not another; for example, a chemical might be toxic if ingested but not if touched.

Effects of Exposure

Health effects of exposure to hazardous chemicals can vary greatly and are specific to each chemical. Possible health effects of exposure may be acute (immediate, or of short-term severity) or chronic (long-term, recurring, or resulting from repeated exposure). Acute effects, usually resulting from a single exposure, might include burns or injury to body organs or systems such as from exposure to corrosive, reactive, or ignitable materials. Chronic effects, usually resulting from repeated or long-term exposure to a toxic material (as in a poorly ventilated work place, for example), could also include systemic or organ damage. Chronic toxic effects of particular concern are birth defects and cancer. Effects of exposure to specific hazardous materials are described in detail in standard references (Budavari, 1989; Howard, 1989 and 1990; Sax, 1989; Sittig, 1985).

Hazardous Waste Regulatory Framework

Generation, storage and handling of hazardous materials and wastes are regulated by various federal, state, and local laws and regulations aimed at the protection of public health and the environment. The Environmental Protection Agency (EPA) is responsible for enforcing regulations at the federal level pertaining to hazardous materials and wastes. The primary federal hazardous materials and waste laws are contained in the Resource Conservation and Recovery Act of 1976 (RCRA), and in the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The EPA has delegated much of its regulatory authority to individual states whenever adequate state regulatory programs exist. The Department of Toxic Substances Control within the California Environmental Protection Agency (Cal-EPA) is the regulatory agency empowered to enforce hazardous materials and waste regulations in California. In addition, the project area is located within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board, which can require investigation and remediation of contaminated groundwater or surface waters. The Contra Costa County Health Services Department, Hazardous Materials Division, oversees cleanup of contaminated soil at hazardous waste sites in the county. The major laws and regulations governing generation, storage and handling of hazardous materials and wastes are discussed in Appendix E.

County Hazardous Waste Management Plan

Contra Costa County's goals, objectives, and policies for managing hazardous wastes and hazardous waste facilities are set forth in the *County Hazardous Waste Management Plan* (Contra Costa County, 1989). The County's Plan provides a comprehensive, in-depth look at all aspects of hazardous waste management from generation through disposal, including:

- hazardous materials/waste laws, plans, and programs,
- current and future hazardous waste generation,
- hazardous waste management facilities,
- waste minimization program,
- small generator programs,
- hazardous waste facility needs analysis,
- hazardous waste facility siting,
- public education and outreach,
- transportation safety,
- contaminated sites program,
- and implementation program.

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The majority of hazardous wastes generated in Contra Costa County is from industries involved in petroleum processing and waste oil generation. The principal wastes are waste oils, inorganic liquids, and organic sludges. Discussions of types and amounts of hazardous wastes generated in Contra Costa County are presented in the *County Hazardous Waste Management Plan*. Local ordinances, plans, and programs for managing hazardous wastes are summarized in Chapter 2, Section VI of the *Plan* (Contra Costa County, 1989). The City of Hercules Hazardous Waste Management Plan, an element of the Hercules *General Plan*, is in compliance with provisions of the County *Plan*, as required by state law.

California has taken steps to reduce commercial hazardous waste generation by passage of SB 14, the Hazardous Waste Source Reduction and Management Review Act of 1989 (CCR, Title 22, Article 6.1, Sections 66520-24). SB 14 contains provisions designed to reduce generation of hazardous waste at its source, reduce release of chemical constituents to the environment, and provide documentation of hazardous waste management information for use by state and local governments. Hazardous waste generators will meet those goals by preparation of source reduction evaluation plans and hazardous waste management performance reports. New businesses in the project area would be required to comply with provisions of SB 14, as applicable, to minimize commercial waste generation.

The *County Hazardous Waste Management Plan* calls for a 45 percent reduction in projected waste levels by the year 2000 (equivalent to roughly 14 percent less than 1987 levels). It is estimated, however, that County hazardous waste generation may increase by up to 62,000 tons per year by the year 2000, even with waste minimization (Contra Costa County, 1989). This increase would primarily be a result of new industrial development in the County. Industrial development of the appropriately designated and zoned areas of Hercules would not be expected to represent a major portion of all new industrial development in the County; the Land Use Element Update would eliminate the Industrial land use designation from Parcels 1, 2, 3, 6, and 7, and would leave only the existing Pacific Refinery and a parcel east of San Pablo Avenue and south of Parcel 7 (both outside the study area) as land designated Industrial. (Parcel 7 would be designated as Planned Commercial-Industrial, which would include research and development and manufacturing, as well as warehouse and distribution, office and retail uses, and a portion of Parcel 1 would be designated Industrial-Residential, which would allow for live-work uses.) New industrial development in Hercules would therefore represent a small portion of development that would occur under the Land Use Element Update.

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Almost all of the hazardous wastes generated in Contra Costa County are sent out of the County for treatment and disposal (Contra Costa County, 1989). Common disposal/treatment options include oil recovery, solvent recovery, other types of recycling, solids stabilization, aqueous treatment such as precipitation and neutralization, or incineration. Recycling of hazardous wastes is favored by state and local agencies, but much hazardous waste still is landfilled or incinerated.

City of Hercules Hazardous Waste Management Plan

The City of Hercules set forth its goals and policies for management of hazardous wastes in the City of Hercules Hazardous Waste Management Plan. The Plan, which is an element of the Hercules *General Plan*, was prepared to help provide for safe and effective management of hazardous waste within the City and to protect public health and safety and the environment (Network Environmental Systems, 1990). The Plan sets forth a set of policies with which the City can more closely control hazardous waste management. The policies involve close enforcement of hazardous waste ordinances, coordination with regional and county agencies, training for City workers, and establishment of programs to minimize hazardous waste production (Network Environmental Systems, 1990). In addition, the City of Hercules *General Plan* has a Source Reduction and Recycling Element that includes plans and programs for handling special wastes, such as contaminated soil and industrial sludge (City of Hercules, 1991a).

The City's Hazardous Waste Management Plan contains several policies that promote proper handling and disposal of hazardous waste (Network Environmental Systems, 1990). These include:

- Bringing all City facilities into compliance with the City's hazardous waste management policies, and with existing statutes and ordinances at the county, state, and federal level.
- Training of City employees in proper safety precautions for management and handling of hazardous waste.
- Enhancing information submitted by local businesses regarding the generation, storage, transport, and disposal of hazardous waste within the City of Hercules upon application or renewal of City business licenses.
- Encouraging waste minimization by local businesses through source reduction, product substitution, development of alternative technologies, recycling, or other effective means.

- Enforcement of all applicable ordinances pertaining to hazardous waste generation, transport, storage, and handling, and actively deterring purposeful violation of these ordinances.

Existing Conditions

The City of Hercules is located within an area of diverse land uses. While many of the parcels in the study area have never been developed, most of them were part of the former site of the Hercules Powder Works Company (Network Environmental Systems, Inc., 1990; Engineering-Science, Inc., 1989). Storage, use and disposal of hazardous materials from past activities have contaminated soils and groundwater in this area. Development of contaminated areas could result in excavation or discovery of materials that, if not remediated, could pose health threats to workers or site occupants. In addition, legitimate but potentially hazardous installations at or adjacent to portions of the area, such as the Pacific Refinery or the Hercules wastewater treatment plant, might place constraints on development.

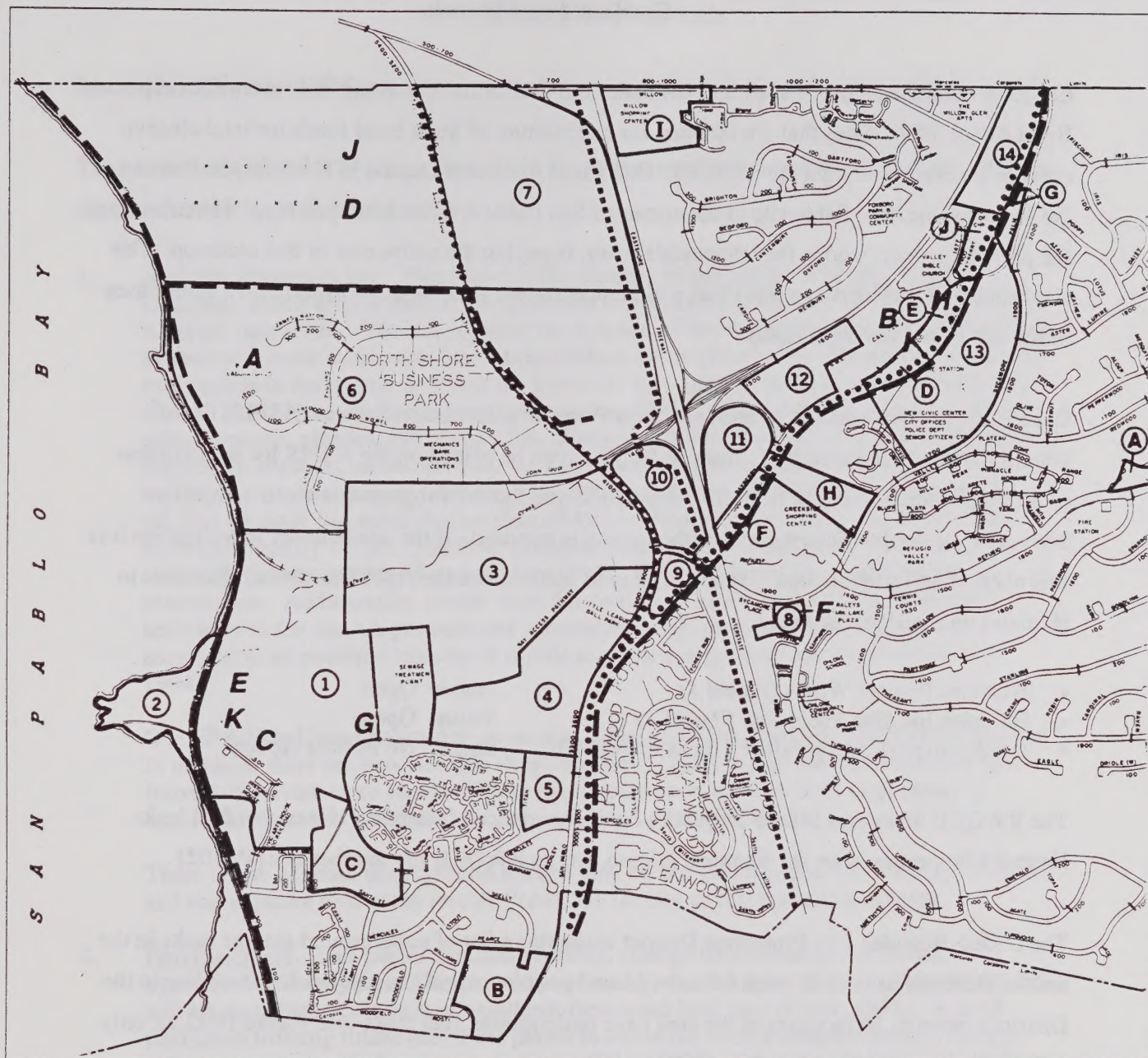
Agency Databases

Under CERCLA the EPA maintains two databases: the National Priorities List (NPL) and the CERCLIS list. NPL is the list of sites identified by the EPA for priority clean-up under the Superfund Program. There were no sites in Hercules on the 1990 NPL list. The CERCLIS list is a list of sites which are or have been investigated by the EPA for a release or threatened release of hazardous substances. Hercules Properties Inc. and the Pacific Refining Company are on the 1990 CERCLIS list.

Under RCRA, the EPA maintains a list of facilities that generate, store, transport, treat, or dispose of hazardous wastes. Three Hercules facilities in the project area are on the 1990 list (see Figure IV.G.1):

- BioRad Laboratories Clinical; 1000 Alfred Nobel Drive (Parcel 6)
- Blair and Sons; 446 Railroad Avenue (Parcel 1)¹
- Hercules Properties Ltd.; 560 Railroad Avenue (Parcel 1)¹

¹ These facilities are no longer active, and remediation of Parcel 1 is currently under way. See the discussion under "Parcel Characteristics and Land Use," below.



SOURCE: Environmental Science Associates, Inc.

Hercules General Plan Land Use and Circulation Elements Update / 930314 ■

Figure IV.G.1
Hazardous Materials Sites
and Pipeline Locations

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Cal-EPA maintains a list of sites that fall under the California Hazardous Substance Cleanup Bond Act of 1984. Sites that are targeted for expenditure of State bond funds for total cleanup costs or for State oversight are included. One Bond Act site is located in Hercules, on Parcel 4, the Hercules Inc./San Pablo site at the corner of San Pablo Avenue and Sycamore. Hercules, Inc. the property owner, who is the responsible party, is paying the entire cost of this clean-up. The site is being remediated to a level that would meet unrestricted land use criteria (*i.e.*, future uses of the site would not be limited).

Cal-EPA also maintains the Abandoned Sites Program Information System (ASPIS) list of potential hazardous waste sites. Sites or facilities can be placed on the ASPIS list by a number of different sources ranging from the Abandoned Site Survey Program to citizen complaints. Sites are evaluated to determine if further action is required. If the site is under investigation it is still open; if no further action is required, it is so indicated in the ASPIS database. The sites in Hercules on the 1990 list are:

- | | |
|---|---------------------------|
| • Hercules Powder Works (Parcel 1) | Status: Open |
| • Hercules Inc./San Pablo Site (Parcel 4) | Status: Open |
| • Unidentified (Underpass/RR Tracks, Parcel 10) | Status: No Further Action |

The RWQCB maintains lists of properties having evidence of chemical releases or fuel leaks. Hercules Properties is on the chemical release list; its RWQCB file number is 2119.1021.

The Rodeo-Hercules Fire Protection District maintains a list of underground storage tanks in the area of Hercules as well as maps of underground petroleum and gas pipelines. According to the District's records, 10 facilities in the area have underground fuel tanks (see Figure IV.G.1); only two are in the project area, on Parcels 1 and E.

Petroleum and high pressure natural gas pipelines operated by Unocal, Chevron, and PG&E pass through Hercules (see Figure IV.G.1). Both petroleum and high pressure natural gas pipelines follow the Southern Pacific and Santa Fe railroad easements and the San Pablo Avenue right-of-way. In addition, a petroleum pipeline passes parallel to I-80 under parts of parcels in this study. No building is permitted on pipeline easements, but roads and parking lots are usually permitted (Jackson, 1991).

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Parcel Characteristics and Land Use

The project area includes 24 sites. Potentially hazardous conditions exist at some of the sites, as discussed below by individual parcel:

1. Hercules Properties Inc. This parcel is the location of the former Hercules Powder Company which used a number of hazardous materials from the late 1800s to 1977, when it ceased operations. The site contains the remains of the dynamite/fertilizer plant as well as several current businesses listed as hazardous waste generators. The property is one of two parcels in the project area that are known to be contaminated and is under remediation (Coler, 1991; Network Environmental Systems, 1990). It is known to be contaminated with ammonia, nitrates, oil, polynuclear aromatic hydrocarbons (PNAs), and several heavy metals. In addition, an old transformer was observed next to leased buildings during a brief site visit. It appeared to be the type that may contain polychlorinated biphenyl (PCBs). A draft Remedial Action Plan (RAP) for final cleanup of soils at this site has been approved by DTSC. The RAP proposes cleanup of this parcel to residential standards (unrestricted land use) (Coler, 1994). Not all areas of the parcel require remediation. Additionally, metals were detected in groundwater, surface water, and sediments at the site. A groundwater monitoring program is being developed and assessments of potential toxicity of metals to aquatic organisms are underway (Coler, 1994).

One EPA-listed hazardous-waste generator, Blair and Sons, formerly operated on the site. In addition, there are two machine shops operating on the site at 444 Railroad Avenue. Barrels of solvent were observed from the outside upon an ESA field inspection. If hazardous materials are in use, they are not listed on the RCRA list.

There is one licensed underground storage tank on the site, listed at 560 Railroad Avenue, and one adjacent to it at the former WestCAT facility at 100 Sycamore Avenue.

2. Hercules Point. This parcel contains chemical storage tanks used by the former dynamite/fertilizer plant. This parcel is covered by the RAP for Hercules Properties, and will be remediated to industrial standards (restricted land use) (Coler, 1994). A deed restriction limiting future use of the parcel to industrial and/or commercial activities is being negotiated with the property owners (Coler, 1994). Several underground petroleum pipelines follow the Southern Pacific Railroad easement that separates this parcel from the Hercules Properties Inc. parcel.
3. Gelsar, Inc. This parcel was contaminated with heavy metals and other materials used to manufacture explosives during the period when it was used by the Hercules Powder Company, and was remediated, in 1985, to a level that will allow for industrial (restricted) land use (Engineering-Science, Inc., 1989; Coler, 1994). Additional remediation that could allow unrestricted land uses, including residential, is under consideration (Sunga, 1994). Numerous piles of concrete and rebar were observed on the parcel during an ESA field inspection in January 1991, along with piles of brush. Household refuse and containers of household hazardous waste (motor oil containers, spray paint cans, etc.) were observed on the site, mostly along roads. In addition, the parcel is adjacent to and downslope from the Hercules Wastewater Treatment Facility. This facility uses chlorine and sulfur dioxide in the treatment process; both of these materials are designated as "acutely hazardous." While there has been no known contamination at the treatment plant, these materials represent a potential hazard. (See Impact Hazard-2.)

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4. Hercules Inc./San Pablo Site. This parcel contains a site listed on the ASPIS as under remediation by DTSC according to terms of the California Hazardous Substances Cleanup Bond Act to allow for unrestricted land use (Network Environmental Systems, 1990). Contaminants detected in soil at this site were metals (primarily lead and zinc) and nitrobenzene derivatives (dinitrobenzene, dinitrotoluene, and trinitrotoluene). Final site cleanup by excavation and disposal of contaminated soil off site was completed and certified by DTSC in November 1992 (Coler, 1994). With the exception of the wetlands area near the center, the parcel was remediated to residential standards. The wetlands were restored to different remedial standards with cooperation of the U.S. Corps of Engineers and the Department of Fish and Game (Coler, 1994). A high-pressure natural gas pipeline passes adjacent to the site along the eastern edge but is within the San Pablo Avenue right-of-way. Household refuse and containers of household hazardous waste (motor oil containers, spray paint cans, etc.) were observed on the site in various locations, mostly along roads.
5. MRB Site. No visible indications of hazards were noted on this parcel during the field investigation except for a bunker in the northeast corner of the parcel that contained tanks supporting remediation activities. This parcel is immediately south of a parcel known to have been contaminated with hazardous substances, the Hercules Inc. / San Pablo Site.
6. North Shore Business Park. This parcel was once part of the Hercules Powder Company's operation. Prior to redevelopment, this parcel contained the remains of 30 storage bunkers and building foundations, and two pit-type storage tanks (City of Hercules, 1982). The parcel was found to be contaminated with heavy metals and explosives associated with operation of the plant and was remediated to residential standards prior to construction of the business park (Coler, 1994). A "small quantity generator" of hazardous waste, BioRad Laboratories, is located on the site. The parcel is adjacent to the Pacific Refinery, and petroleum pipelines run along the north edge of the parcel from the Southern Pacific Railroad easement to the PG&E tank farm.
7. ANR Site. This parcel is undeveloped with no visible indication of contamination by hazardous substances. However, it is across San Pablo Avenue from Pacific Refining's tanker truck fill-in terminal. The refinery is a source of toxic air contaminants (see Air Quality Section), is a RCRA-listed generator of hazardous waste, has reported spills under the Emergency Response Notification system, and has a permitted underground storage tank. The groundwater gradient near the underground storage tank is not known. A petroleum pipeline passes under the eastern edge of this parcel adjacent to a East Bay Municipal Utility District right-of-way and a high-pressure gas line passes along the edge of the parcel along the San Pablo Avenue right-of-way.
8. Hercules Square Site. This parcel contains no listed hazardous waste sites and no visible indications of hazards were noted on this parcel during the field investigation. The site lies adjacent to a Pacific Bell facility listed as a hazardous waste generator by RCRA.
9. ORB Site. This parcel has no known hazardous waste contamination. This parcel lies adjacent to the Santa Fe Railway right-of-way, which contains petroleum and high pressure natural gas pipelines. Some of the gas pipelines cross the site.
10. BART Site. This parcel is listed on the ASPIS list with a "No Further Action" status indicating that hazardous materials could have been present but that not enough evidence existed to warrant further investigation. Several piles of concrete and dirt were observed at both the south and north ends of the parcel. A petroleum pipeline passes under the

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eastern part of this parcel adjacent to the freeway and a high-pressure gas lines passes near the site, north of San Pablo Avenue.

11. I-80 Exit Loop Site. This parcel has no known hazardous waste contamination. This parcel is downslope from the underground storage tank on the Caltrans storage lot. Several piles of concrete and dirt were observed on the site indicating that the site has been used for dumping of surplus material.
 12. TABCO Site. Although this parcel contains no known hazardous waste contamination, it is adjacent to a RCRA listed hazardous waste generator, Caltrans, which is also on the ASPIS list. The parcel is also downslope from underground storage tanks at the Caltrans facility and at 1350 Bayberry Avenue. Several piles of concrete and dirt were observed on the site indicating that the site has been used for dumping of surplus material.
 13. Sycamore Site. This parcel has no known hazardous waste contamination. Three crude oil pipelines and one gas pipeline pass along the northern edge of this parcel parallel to the Santa Fe Railway.
 14. Five Giants Site. This parcel has no known hazardous waste contamination. Household-type refuse along the road frontage and small piles of debris were observed.
- A. Church of the Nazarene. This parcel lies in a gully that may have been used by the former Hercules Powder Company as a mixing and packing area for explosives. The gullies provided a safety barrier in the event of an explosion (Psota, 1993). As a result, the soil may be contaminated with hazardous wastes. However, no visible indication of hazardous waste contamination was noted on this parcel during a site investigation.
 - B. McLeod Family. The eastern corner of this parcel is used as a storage area for steel pipes, heavy construction equipment and debris. One 500-gallon above ground rusted storage tank and 50-gallon drum were also observed on the site. Other portions of the parcel are currently used as horse pasture, suggesting that the tank may have been used for on-site water storage. PG&E's underground gas pipeline extends along the southeastern border of this site, parallel to the Santa Fe Railway. Chevron's underground petroleum pipeline follows the same route on the other side of the tracks.
 - C. Citation. No visible indications of hazards were noted on this parcel during the field investigation. Similar to the Church of the Nazarene parcel, this parcel may have been used by the former Hercules Powder Company for mixing and packing of explosives. Subsurface deposits may include dynamite magazines (Psota, 1993).
 - D. Carone-1. This parcel is actively used as a heavy equipment storage area. Piles of concrete, steel boxes and pipe were observed on the site. A 500-gallon above ground tank is located on the southern portion of the parcel. The contents of the tank were not investigated. The Santa Fe Railway tracks extend along the southern perimeter of the parcel.
 - E. Carone-2. Similar to Carone-1, this parcel shows evidence of current and previous use as a storage area for construction supplies. Approximately one dozen gallon cans were observed stacked on a palette on the eastern portion of this parcel. The contents of the cans were not investigated. A 20-foot wide by 5-foot high steel cylinder, several 50-gallon drums, and a stack of pipes were located in the same area. A steel building is

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located on the western portion of this parcel. It is not known if hazardous materials are used or stored inside the building, as the field investigation was conducted from Bayberry Avenue.

- F. Carone-Sycamore. This parcel is undeveloped with no visible indication of contamination by hazardous substances. The Santa Fe Railway extends along the southern perimeter of the site. Adjacent to the railroad tracks are two underground utility lines. Pacific Gas and Electric Company operates the gas pipeline, and Chevron operates a petroleum pipeline.
- G. Old ATSE. Construction debris and a few dirt piles are scattered along an access road that leads to Santa Fe's transmitter/receiver box. The Santa Fe Railway tracks extend along the northern perimeter of this parcel. Adjacent to the railroad tracks are the two underground utility lines. No other indications of hazards were noted on this parcel during the field investigation.
- H. Creekside. This parcel is adjacent to the existing Creekside Shopping Center. It has no visible signs of hazardous waste contamination. The northern perimeter of the site is approximately 100 feet from the underground petroleum and gas pipelines.
- I. Willow Center. This parcel is currently developed with the Willow Shopping Center. Hazardous material users include a BP Gas Station and Willow Cleaners. Willow Cleaners uses perchloroethylene, a known toxic air contaminant. No visible indications of hazardous material contamination were noted during the field investigation of this parcel.
- J. Church of Christ. No visible indications of hazardous conditions at this parcel are evident. The Santa Fe Railroad line extends along the southern perimeter of the site, and is generally upslope from the parcel. Adjacent to the railroad tracks are the two underground utility lines.

IMPACTS AND MITIGATION MEASURES

Introduction and Methodology

One of the goals of the current Hercules General Plan is to encourage a compatible arrangement of residential, commercial, industrial, public uses and open spaces in the City in order to provide for a healthy economic base (City of Hercules, 1990). The general goals of the Draft Land Use Element Update are to preserve and enhance the community's quality of life with well balanced growth and development and to create a community with a wide range of choices, services, and amenities.

Commercial and industrial developments that would be part of the enhanced community use hazardous materials and generate hazardous wastes that have the potential of posing risks to the public. Potential project impacts on public health and safety would stem from interactions between the workers and populace with the hazardous materials and wastes used by industry. The Contra Costa *County Hazardous Waste Management Plan* and the City of Hercules

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Hazardous Waste Management Plan provide goals and policies for dealing properly with hazardous wastes and materials; the general goals are to protect the health, safety, and welfare of the public and the environment through safe and effective hazardous materials and waste management.

In order to evaluate potential impacts, the project plans, existing conditions, and appropriate regulations and guidelines were compared to determine how current activities within the project area involve handling hazardous materials or hazardous wastes, how proposed uses and activities would mesh with current conditions, and how those proposed uses would comply with applicable guidelines.

Significance Criteria

According to CEQA standards, a project would generally be considered to have a significant adverse environmental impact if it would create a potential public health hazard; involve the use, production, or disposal of materials that pose a hazard to people, animal or plant populations in the area affected; or would interfere with emergency response plans or emergency evacuation plans. For the purposes of this EIR, the following significance standards will be used:

- An impact would be considered significant if the project would involve the use, handling, or disposal of materials or wastes that would pose a hazard to people, or to animal or plant populations in the area affected.
- An impact would be considered significant if the project would expose area occupants or employees to working situations that exceed health standards.
- An impact would be considered significant if the project would create a substantial potential public health or safety hazard due to unusual risk of accidents.
- An impact would be considered significant if the project would interfere with emergency response plans or emergency evacuation plans.
- A impact would be considered significant if the project would violate policies set forth in the *Contra Costa County Hazardous Waste Management Plan*, or in the *City of Hercules Hazardous Waste Management Plan*.

An impact would not be considered significant if the potential for adverse effects is remote or if adverse effects would not occur because of the inherent characteristics of the potential impact.

Impact Hazard-1: Cleanup of hazardous materials or wastes currently in the project area could pose a threat to workers or the environment. This would be a significant impact.

As described under Existing Conditions, hazardous materials have been used at some of the parcels proposed for eventual development under the project. Such past use, most notably at the Hercules Powder Co. properties, has contaminated some areas and could have resulted in hazardous wastes being present at other locations as well. During buildout of the project area, contaminated soil, contaminated groundwater, and leaking or intact underground storage tanks (USTs) could be encountered at individual project sites. Two parcels (Parcels 1 and 4) are currently under remediation (Network Environmental Systems, 1990). Contaminants include inorganic and organic chemicals (e.g. metals, nitrates, ammonia). Other contaminants likely to be found in the project area include solvents, fuels, pesticides, and herbicides. Cleanup of environmental contamination is regulated and monitored by local agencies enforcing federal, State, and local laws and regulations, as described in the Setting. Table IV.G.1 lists potential hazardous waste-related impacts of activities that typically occur during development. (Quantitative threats to public health or safety posed by the presence of hazardous materials or wastes could be evaluated only with a formal health risk assessment.)

In addition to the USTs mentioned in the Setting, it is possible that other old or abandoned USTs are present in the project area. Leaking USTs are one of the primary sources of environmental contamination in the Bay Area. The contents of USTs may be hazardous; a previously unknown UST, uncovered or disturbed during excavation, could threaten the health and safety of site workers. A leaking UST could pose additional threats to groundwater resources and the environment, and could also pose a possible explosion hazard.

If a UST were found in a development area during future construction activities, it would have to be closed in place or removed. A UST left in the ground could pose both health and safety risks, such as the exposure of workers, tank handling personnel, and the public to tank contents or vapors. Risks posed by underground storage tanks would be minimized by closing the tank according to guidelines of the County Health Services Department and the local Fire Department. Problems associated with leaking underground tanks are expected to gradually diminish in the future as federal and State legislation mandating tank testing and integrity monitoring procedures have greater effect.

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TABLE IV.G.1: TYPICAL IMPACTS OF DEVELOPMENT-RELATED ACTIVITIES

<u>Project Activity</u>	<u>Contaminated Materials</u>	<u>Potential Impacts</u>
Excavation and site preparation	Soil gases, soil, groundwater	Health of workers, public and/or environment
Site investigation	Soil, groundwater	Health of workers and/or public
Dewatering	Groundwater	Health of workers, public, and/or environment
Underground storage tank closure	Tank, vapor, soil	Health and safety of workers and/or public
Site remediation	Soil gases, soil, groundwater	Health of workers, public and/or environment

SOURCE: Environmental Science Associates, Inc.

Soil contamination or other hazards are commonly detected by inspecting and searching public records for a subject property. That type of investigation is termed an environmental assessment or audit, and is performed independently by a California Registered Environmental Assessor (REA). When evidence of site contamination is found, additional data can be gathered by actually sampling and testing the soil. If contamination were to remain undetected, health or safety risks could be experienced by workers or the public, as indicated in Table IV.D.1.

If contamination were detected in areas to be excavated, site remediation would be necessary. Site remediation would be guided by a Site Mitigation Plan that would include at a minimum the following: proposed methods of treating hazardous soils in a manner that would render them

nonhazardous or otherwise protect public health and safety; plans for final disposal of soils, treated or otherwise; and plans for handling, testing, treating, and disposing groundwater during dewatering. Hercules is estimated to have generated approximately 868 tons of contaminated soil in 1990 (City of Hercules, 1991a). Contra Costa County's policies and procedures for remediating contaminated sites are discussed in Chapter 11 of the *County Hazardous Waste Management Plan* (Contra Costa County, 1989).

The major hazards-related impacts of environmental cleanup due to development associated with implementation of the Land Use Element Update would be beneficial over the long term. Remediation of contaminated sites would eliminate the health threats posed by hazardous wastes and prevent workers and the public from encountering such materials in the event of any future excavation at the site. Removal of the toxic materials would also eliminate a potential local source of groundwater contamination, which would also be beneficial for the long term.

Site remediation measures in themselves could have impacts. During site remediation, workers, and possibly the public, could be exposed to chemical compounds in soils, soil gases, or groundwater. The public and the environment could be exposed to airborne chemical compounds migrating from a site under remediation. Accidents during transportation of contaminated soils and/or groundwater could lead to exposure of the public and the environment to the chemical compounds. Exposure to hazardous waste could cause various short-term or long-term health effects. For particular substances, such health effects are described in detail in standard references. Worker and public health and safety requirements described in the Setting would apply during remediation activities.

Potential impacts of remediation would be mitigated, in part, by legally required safety and hazardous waste handling and transportation precautions. For hazardous waste workers, federal Occupational Safety and Health Administration (OSHA) regulations mandate an initial 40-hour training course and subsequent annual training review. Additionally, site-specific training would be required for some workers. In responsible agency review of mitigation plans, procedures for protection of the public during remediation would be evaluated. These measures, along with application of clean-up standards, would serve to protect human health and the environment during site remediation, thus minimizing remediation impacts.

Additional site investigations could be performed as part of remediation of specific site(s). Additional investigation could include collection of soil and/or groundwater samples at

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contaminated sites, transportation of the samples to an analytical laboratory, and analysis and reporting. Workers directly engaged in the sampling activity would face the greatest potential for exposure. The public could be exposed to contaminants if an accident during sample transportation were to occur, or if access to a contaminated site were not controlled. Because relatively small amounts of material are collected as samples, exposure to potential hazards during site investigation would be limited, and associated impacts would be localized.

Performance of the environmental investigations as specified and remediation of hazardous materials or wastes, if any, identified during the audits would render this impact less than significant.

Reuse of existing historic building, as called for in Land Use Element Policy 8A.1 could require removal and disposal of hazardous building materials.

Impact Hazard-1: Mitigation Measures Proposed as Part of the project:

None identified.

Impact Hazard-1: Mitigation Measures Identified in Other *General Plan* Elements:

None identified.

Impact Hazard-1: Mitigation Measures Identified in this EIR

Hazard-1a: At every potentially contaminated location to be developed within the City, the project applicant shall have the site inspected by a Registered Environmental Assessor (i.e. a professional environmental scientist or engineer registered as an REA in California) for the presence of hazardous materials and wastes.

The investigations shall take the form of environmental audits, and shall include, at minimum, site inspections for hazardous materials, examination of historic records, and reviews of public agency records. Reports detailing the results of the inspections shall be submitted to the City for review. The report preparer shall either certify that the site is free of hazards or recommend preparation of a site mitigation plan.

The City shall make certain that inspection reports are on file prior to project approval and prior to any excavation or construction. Acceptance of the site inspection report shall allow the proposed development to proceed to the permitting stage. All activities under this mitigation shall be done in conformance with the policies and procedures presented in Chapter 11 of the *County Hazardous Waste Management Plan*.

Hazard-1b: In the event that the site inspections of Mitigation Measure Hazard-1a uncover chemical contamination, underground storage tanks, abandoned drums, or other hazardous materials or wastes at a parcel, the inspection report preparer shall so notify the City. The City shall notify the County Health Services Department. Under the direction of these agencies, a site remediation plan shall be prepared by the project applicant.

The plan would (1) specify measures to be taken to protect workers and the public from exposure to potential site hazards and (2) certify that the proposed remediation measures would clean up the wastes, dispose the wastes, and protect public health in accordance with federal, State, and local requirements. Permitting or work in the areas of potential hazard shall not proceed until the site remediation plan is on file with the City.

If a parcel is found to be contaminated to a level that prohibits the proposed use, the potential for reduction of the hazard should be evaluated. Site remediation is theoretically capable of removing hazards to levels sufficiently low to allow any use at the site. In practice, both the technical feasibility of the remediation and its cost (financial feasibility) should be evaluated in order to determine the overall feasibility of locating a specific use on a specific site. In some cases, it may be found that a site may be appropriate for any use; in other cases, as site may require restriction to industrial use or a use that involves complete paving and covering of the parcel.

In accordance with OSHA requirements, any activity performed at a contaminated site shall be preceded by preparation of a separate site health and safety plan (prepared by the project applicant and filed with the City) for the protection of workers and the public. All reports, plans, and other documentation shall be added to the administrative record. All activities under this mitigation shall be done in conformance with policies and procedures presented in Chapter 11 of the *County Hazardous Waste Management Plan*.

Hazard-1c: For the two former Hercules Powder Co. parcels currently being remediated parcels, the City shall obtain copies of closure reports prepared by Cal-EPA certifying that the properties have been remediated and pose no threats to public health.

Because of ongoing cleanup activity under the jurisdiction of Cal-EPA, the measures identified in Hazard-1b may not be necessary for the two Hercules parcels being remediated under the jurisdiction of Cal-EPA. For those two parcels, the City shall obtain copies of closure reports prepared by Cal-EPA certifying that the properties have been remediated and pose no threats to public health.

Impact Hazard-1: Significance After Mitigation

Less-than-significant.

Impact Hazard-2: Potentially hazardous installations in or adjacent to the project area could pose a threat to occupants or residents should adjacent areas be developed. This would be a significant impact.

In addition to individual parcels that might be contaminated by hazardous wastes, pipelines carrying hazardous materials (natural gas and petroleum products) traverse portions of the project area. Large installations that use hazardous materials, including the Pacific Refining Company and the Hercules Wastewater Treatment Facility, occupy adjoining lands. These types of installations could constrain development of certain parcels or pose ongoing risks for project occupants should development proceed. A parcel-by-parcel discussion of constraints to development posed by hazardous installations at individual properties follows.

1. Hercules Properties Inc. Development of this parcel could be constrained by the presence of hazardous materials users and hazardous waste generators at existing industrial facilities, and by the remains of the former dynamite/fertilizer plant. The remediation plan for Hercules Properties Inc. covers this parcel. Soil contamination is known to be present, but that contingency would be covered either under Mitigation Measures Hazard-1a and Hazard-1b or by the remediation plan. The levels of remediation, continuing operations, and contaminated site cleanup would determine what future land uses would be allowed on each specific plot or area of the parcel. The proposed Remediation Action Plan would permit unrestricted use, including residences, on Parcel 1. Proposed land use designations are Historic Town Center, General Commercial and Industrial, Recreational Commercial, Industrial/Residential, Office/R&D, and Multi-Family Medium Density Residential. The time necessary to complete site remediation might delay construction of any potential site development.

The Hercules Wastewater Treatment Facility is east of the Hercules Property. The plant stores and uses the acutely hazardous materials chlorine and sulfur dioxide. An accidental release of these materials would require evacuation of the area downwind. Land uses involving immobile populations such as hospitals and convalescent homes would be inappropriate for this parcel; no such uses are proposed under the Land Use Element Update.

2. Hercules Point. This parcel is covered by the same Remediation Action Plan as Parcel 1. However, development on Parcel 2 would be restricted to industrial and/or commercial activities. The time necessary to complete site remediation might delay potential site development.
3. Gelsar Properties Inc. According to the EIR on the Gelsar property and North Shore Business Park, this formerly contaminated parcel has been remediated to industrial (restricted use) standards (Engineering-Science, Inc., 1989). Additional remediation that could allow unrestricted land uses, including residential, is under consideration (Sunga, 1994). Proposed land use designations are General Commercial and Industrial, and Planned Commercial/Residential.

A high-pressure natural gas pipeline runs along the eastern boundary of the parcel and could pose a risk of fire or explosion. A pipeline right-of-way allows permanent access to the installation by restricting development within the right-of-way. However, especially in the case of a pipeline carrying extremely flammable material such as natural gas or petroleum products, the pipeline right-of-way might not be wide enough to assure the safety of nearby development, particularly if the pipeline is not precisely located in the center of its right-of-way. Setbacks or a buffer zone between the pipelines and any structures, in addition to the easements, might be needed to protect the health and safety of future site occupants. As a result, future development of the parcel might be restricted in terms of location on the property.

An accidental release of the materials used at the Hercules Wastewater Treatment Facility would require evacuation of the area downwind.

4. Hercules Inc./San Pablo Site. Remediation of this site was complete in November 1992. An accidental release of the materials used at the Hercules Wastewater Treatment Facility, west of the parcel, would require evacuation of the area downwind.

A high-pressure natural gas pipeline and a crude oil pipeline run along the eastern boundary of the parcel and could pose a risk of fire or explosion. Conditions would be analogous to those for Parcel 3. Proposed land use designations would allow Multi-Family Medium Density Residential, Planned Commercial-Residential, and General Commercial uses.

5. MRB Site. A high-pressure natural gas pipeline and a crude oil pipeline run along the eastern boundary of the parcel and could pose a risk of fire or explosion. Conditions would be analogous to those for Parcels 3 and 4. Proposed land use designations are Planned Commercial/Residential and Multi-Family Medium Density.
6. North Shore Business Park. According to the EIR on the North Shore Business Park, this formerly contaminated parcel has been remediated (City of Hercules, 1982). When the remediation was completed, it was certified by Cal-EPA without future development restrictions. The clean-up standards for specific land uses are continuously being modified, however, so sites previously cleaned to an "unrestricted level" may no longer be acceptable for sensitive land uses such as schools, residences, or hospitals. Clean-up standards for industrial land uses would not likely be more stringent in the future. Proposed land use designations are General Commercial and Industrial and Office/R&D.

This parcel is adjacent to the Pacific Refining Company property, which could possibly result in constraints on development. A Health Risk Assessment was recently prepared for Pacific Refining as part of the Improved Fuels Modification Project EIR (Woodward-Clyde Consultants, 1993). Risks to public safety from routine emissions of toxic chemicals were assessed. The "one-in-a-million" cancer risk isopleth extends southwest from the refinery boundary to cover approximately one-half of Parcel 6.² In an accident analysis prepared for the same report, the probability of a major accident that caused offsite injuries was judged to be the same as the national average for refineries, or 1 chance

² The "one-in-a-million" cancer risk isopleth is a distance at which the population is exposed to an increase of one-in-a-million chance of getting cancer.

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in 6,000 years. A Risk Management and Prevention Plan was prepared for the refinery at the direction of the Contra Costa County Health Services Department (Woodward-Clyde Consultants, 1993). The RMPP found the refinery to be safe.

In addition nearby, a crude oil pipeline and a high-pressure natural gas pipeline bound the north and east of the parcel, respectively. These pose a risk of fire and explosion, and future development could be restricted in terms of location on the properties.

7. ANR Site. This parcel is immediately adjacent to the Pacific Refining Company property, which could possibly result in constraints on development, although only Commercial/Industrial use is planned. The "one-in-a-million" cancer risk isopleth extends east and south from the refinery boundary to cover roughly one-third of Parcel 7.

A six-inch petroleum product pipeline runs under the parcel and would constrain development; the pipeline has a 10-foot-wide right-of-way. No buildings are permitted in the right-of-way. A high pressure gas pipeline bounds the site to the west. The pipelines might require additional buffer zone setbacks for safety reasons.

8. Hercules Square Site. Development of this parcel, Community Commercial, would not be constrained by any identified hazards.
- 9/10. ORB Site and BART Site. Development of these parcels might be restricted to some extent by the petroleum pipelines and high pressure natural gas pipeline that pass adjacent to or under the parcels. Development is slated for General Commercial on Parcel 9. A transit center is nearing completion on Parcel 10.
- 11/12. I-80 Exit Loop Site and TABCO Site. The presence of underground storage tanks and equipment maintenance operations adjacent to these parcels raises the possibility that the soil or groundwater might have been contaminated by fuel leaks or improper disposal of waste oil or solvents. Such contamination, if any, would be remediated under Mitigation Measures Hazard-1a and Hazard-1b. Development of these parcels might be restricted by the crude oil pipeline and high pressure natural gas pipeline that bound the parcels to the southeast. General Commercial and Industrial uses are planned. Pipelines would have to be precisely located before any development can proceed. A setback for maintenance and/or buffer zone in addition to the pipeline right-of-way might be needed.
13. Sycamore Site. Development of the north edge of this parcel might be constrained by the oil and natural gas pipelines running along the northern boundary of the parcel. Commercial/Residential is planned. As with Parcels 11 and 12, pipelines would have to be precisely located before any development can proceed, and a maintenance setback and/or buffer zone might be needed.
14. Five Giants Site. General Commercial and Industrial development of this parcel would not be constrained by any identified hazards.
- A. Church of Nazarene. The impacts of potential soil contamination on this parcel would be mitigated covered by Mitigation Measures Hazard-1a and Hazard-1b. No other constraints to development, which is slated to be Multi-Family Low Density, are foreseen.

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- B. McLeod Family. The impacts of potential soil contamination from the equipment storage on this parcel would be mitigated by Mitigation Measures Hazard-1a and Hazard-1b. The natural gas and petroleum pipelines along the southern border of this site could pose constraints to development, which is slated to be Multi-Family Low Density.
- C. Citation Conditions at this parcel are similar to those at Parcel A. The possibility of soil contamination on this parcel would be covered by Mitigation Measures Hazard-1a and Hazard-1b. No other constraints to development, which is slated to be Multi-Family Low Density, are foreseen.
- D/E. Carone-1 and Carone-2. The impacts of potential soil contamination from the materials stored on these parcels would be mitigated by Mitigation Measures Hazard-1a and Hazard-1b. The natural gas and petroleum pipelines along the northern border of the parcels could pose minor constraints to development, which is slated to be General Commercial and Industrial.
- F. Carone-Sycamore. The natural gas and petroleum pipelines along the southern border of the parcels could pose constraints to development, which is planned to be General Commercial and Industrial.
- G. Old ATSE. The impacts of potential soil contamination from the materials stored on this parcel would be mitigated by Mitigation Measures Hazard-1a and Hazard-1b. The natural gas and petroleum pipelines along the western edge of the parcel could pose constraints to development, which would be Community Commercial.
- H. Creekside. Community Commercial development of this parcel would not be constrained by any identified hazards.
- I. Willow Center. Redevelopment of this parcel would not be constrained by any identified hazards, assuming that existing hazardous materials users were decommissioned properly.
- J. Church of Christ. The natural gas and petroleum pipelines along the western edge of the parcel could pose constraints to development, which would be General Commercial and Industrial.

Those constraints will be factors in parcel-by-parcel planning as the project area is developed.

Impact Hazard-2: Mitigation Measures Proposed as Part of the project

The following mitigation measure is a proposed policy in the Land Use Element Update:

Objective 13: Minimize the impacts from incompatible land uses on existing and planned development areas.

Policy 13A: Create a transition between residential neighborhoods and commercial/industrial areas, except where such mixed uses are desirable (e.g., live/work space and other designated areas). The transition should separate land uses that might be

incompatible if located in close proximity. Land uses must minimize adverse impacts and those that would not negatively impact adjoining properties should be encouraged.

Impact Hazard-2: Mitigation Measures Identified in Other *General Plan* Elements:

None identified.

Impact Hazard-2: Additional Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on the following mitigation measures:

Hazard-2a: No residential development shall be allowed within the "one-in-a-million" cancer risk isopleth enclosing Pacific Refining Company, as illustrated in the Pacific Refining Company Improved Fuels Modification Project EIR (Woodward-Clyde Consultants, 1993). This mitigation applies only to Parcels 6 and 7.

Hazard-2b: If required by the Contra Costa County Health Services Department, a Risk Management and Prevention Plan (RMPP) should be prepared for acutely hazardous chemicals handled at the Hercules Wastewater Treatment Plant. The RMPP should be prepared by the operators of the Hercules Wastewater Treatment Plant. The RMPP should be prepared with the guidance of the Contra Costa County Health Services Department.

Hazard-2c: One policy of the City of Hercules *Hazardous Waste Management Plan* is to coordinate City emergency response procedures with the Rodeo-Hercules Fire Protection District, and to train city personnel in emergency response procedures through establishment of an interagency emergency response task force. The City shall include potential emergencies involving hazardous materials handled at the Hercules Wastewater Treatment Plant shall be included in the emergency planning.

Hazard-2d: Future residents or occupants of Parcels 1, 3, and 4 shall be informed of what actions to take in the event of an acutely hazardous materials release from the Hercules Wastewater Treatment Plant.

Hazard-2e: No buildings, pavement, landscaping, or other development shall be installed in any pipeline right-of-way, nor within ten feet of any pipeline right-of-way.

Hazard-2f: The City shall consider establishing a buffer zone that would separate future residential development from existing petroleum and natural gas pipeline rights-of-way.

Impact Hazard-2: Significance After Mitigation

Less-than-significant.

Impact Hazard-3: Development consistent with the Land Use and Circulation Elements Update would indirectly allow for the potential increased handling of hazardous materials and the potential increased generation of hazardous wastes by new industrial and commercial facilities occupying areas of the City designated and zoned for such uses. This impact would be less than significant.

All but three of the 24 parcels would undergo changes in land use designations that would allow some degree of commercial or industrial use. As noted in the Setting, the Land Use Element Update would remove from Industrial use all parcels in the study area, and would leave only the Pacific Refinery and a parcel east of San Pablo Avenue and south of Parcel 7 (both outside the study area) as land designated Industrial. Commercial businesses such as print shops, photo developers and auto repair shops do, however, use hazardous materials and generate hazardous wastes, as do businesses engaged in biotechnology research. Development of the parcels as planned would broaden the City's commercial and, to a much lesser extent, industrial base, which in turn could result in increased handling of hazardous materials by business. Because of the limited new industrial use anticipated, the increase would be expected to be relatively small.

The number of potentially hazardous chemicals used in commerce and industry is very large. With the types of business activity anticipated, hazardous materials and wastes typically encountered can be identified and discussed in a generic manner to describe, via example, the range of hazards that might be encountered. Hazardous properties are categorized into four types: toxic, ignitable, corrosive and reactive; many hazardous chemicals have properties that cause them to qualify for more than one category. Examples of typical hazardous substances that could be used in the project area include sulfuric acid (toxic, corrosive and reactive); solvents such as acetone (ignitable), benzene (toxic and ignitable), and chlorinated hydrocarbons (toxic); and solid wastes containing lead compounds (toxic), sodium hydroxide (toxic, corrosive and reactive), and pentachlorophenol or other chlorinated phenols (toxic). Within the hazard categories, many chemicals pose special dangers due to tendencies to bioaccumulate in living tissue, or to generate toxic fumes when exposed to fire, or to cause cancer and birth defects.

Currently, Pacific Refining Company is the only large-quantity industrial generator of hazardous waste in Hercules. Bio-Rad Laboratories generates smaller amounts of hazardous waste. Total

generation of hazardous waste in the City is relatively small in comparison to nearby industrial parts of Contra Costa County (Network Environmental Systems, 1990).

Impact Hazard-3: Mitigation Measures Proposed as Part of the project:

None identified.

Impact Hazard-3: Mitigation Measures Identified in Other *General Plan* Elements

The City of Hercules *Hazardous Waste Management Plan* (discussed in the setting) contains several policies and recommended programs that would promote proper and safe handling of hazardous materials. These include:

- Train City employees who handle or otherwise come in contact with hazardous materials or hazardous waste in the proper safety procedures for managing and handling these substances. (Policy, Sec. 4.3)
- Establish an enhanced hazardous waste and materials data base, oriented toward land use issues and zoning ordinance enforcement, to be implemented by the Planning Department, which will incorporate information from business which hold City of Hercules business licenses. (Policy, Sec. 4.3)
- Train current inspectors to recognize hazardous materials and hazardous waste management problems and to coordinate with fire department inspectors in order to ensure compliance with the Hercules Municipal Code and other applicable regulations. (Policy, Sec. 4.3)
- Develop, in coordination with the Rodeo-Hercules Fire Protection District, a program to regularly inspect and/or monitor facilities which are determined to be or suspected of handling or managing hazardous materials within the city's jurisdiction. Such inspection may be possible in conjunction with existing inspection programs. (Program, Sec. 4.4)
- Enact a requirement for all generators or handlers of hazardous materials above a specified minimum (consistent with AB 2185 (1986) and AB 3777 (1989)) to provide the City with an on-file Hazardous Waste Business Plan and Risk Management and Prevention Plan. Generators and handlers subject to this requirement are those who generate or handle more than 55 gallons (liquid), 500 pounds (solid), or 200 cubic feet (gas at standard temperature and pressure) of hazardous materials annually. More detailed questionnaires regarding storage and handling of hazardous substances should be issued to each applicant for a City business license and issuance of the license should be contingent upon satisfaction of City requirements and ordinances pertaining to handling and storage of hazardous materials and waste. (Program, Sec. 4.4)

The above policies and programs would apply to the study area. Industrial and commercial development could result in an unavoidable increase in use of hazardous materials, but would not be expected to create hazardous conditions demonstrably different from conditions already existing in the developed portions of Hercules because of existing City policies. The impact would be one of scale rather than substance, and is judged to be less than significant. The following mitigation measures are identified to further reduce the potential impact of increased handling of hazardous materials and increased generation of hazardous waste:

Impact Hazard-3: Additional Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on the following mitigation measures:

Hazard-3a: The City shall ensure that use, storage, and handling of hazardous materials by businesses and industries within the project area is done in compliance with applicable City policies as well as and State and local laws, guidelines, and regulations.

Hazard-3b: Residents adjacent to new hazardous materials handling facilities shall be notified immediately by the City emergency response organizations of any accidental occurrences such as spills, leakages, or eruptions which may affect the health, safety and welfare of the public.

Hazard-3c: New businesses in the project area shall be required to install their temporary hazardous waste storage areas on paved, impermeable surfaces with drainage controls and spill containment features.

Hazard-3d: Waste stored temporarily at generator facilities shall be segregated by hazard category and stored in individual, sealed storage containers. Separate containers shall be used for flammables, acids, bases, poisons, and reactive wastes.

Impact Hazard-3: Significance After Mitigation

Less-than-significant.

In summary, industrial development under the project would be similar to the existing types of industrial uses in Hercules. The project would result in generation of hazardous wastes that would be similar to current conditions within the City, and would be less-than-significant. To supplement City policies, two mitigation measures are suggested.

Impact Hazard-4: Development under the Land Use and Circulation Elements Update would result in increase in the generation, storage, and disposal requirements of household hazardous wastes. This impact would be less than significant.

A household hazardous waste is any waste generated by households that can cause illness or death, or pose a threat to health or the environment when improperly stored, disposed, or otherwise managed. Examples of common household products that eventually become hazardous wastes include paints, sealants, pesticides, waste oil, pool chemicals, transmission fluid, antifreeze, and batteries (Contra Costa County, 1989). Nearly all households use and store some of these products, and unless the materials are used up or recycled, they eventually enter the waste stream. When disposed, such materials are considered hazardous by law, regardless of quantity and containment.

Data are available that indicate up to 0.43 percent of waste disposed in municipal landfills may originate as household hazardous wastes (Sacramento County Environmental Management Department, 1989). The *Contra Costa County Hazardous Waste Management Plan* has no comparable data, but estimates that the average household produces 7.5 pounds of hazardous waste per year. An estimated 1,070 tons of hazardous waste are generated by Contra Costa County's 285,000 households per year (Contra Costa County, 1989).

Until recently, the general public was poorly informed of hazards presented by various household materials. Few householders undertook to deliver their hazardous wastes to adequate treatment and disposal facilities. In the past, household hazardous wastes have sometimes been stored indefinitely in garages or have found their way into sewer systems, vacant lots, or municipal landfills. Improper methods of disposal have the potential to cause injuries or contaminate surface and ground water, risking both public health and environmental quality.

State and local jurisdictions have been moving gradually to implement proper control and disposal of household hazardous wastes. Recent state legislation, AB 939, also encourages acceptance and treatment of household hazardous wastes by certain waste handling facilities. Establishment of permanent collection centers or periodic collection events at temporary locations are the most common methods for gathering household hazardous waste for disposal other than through the municipal garbage collection system. Contra Costa County actively encourages proper disposal of household hazardous waste. The *Contra Costa County Hazardous Waste Management Plan* calls for continued development of effective programs to reduce

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generation of household hazardous waste and to manage household hazardous waste, including proper collection and disposal.

The Hercules Hazardous Waste Management Plan encourages community participation in municipal household hazardous waste collection through educational and technical programs. Such programs might include distribution of educational materials, sponsoring educational events, arranging community hazardous waste collection days, and investigation of potential for a permanent household hazardous waste collection facility (Network Environmental Systems, 1990). (Periodic household hazardous waste collection days are currently held in Hercules.) Continued implementation of this policy and applying it to residential developments in the project area would mitigate this potential impact.

Impact Hazard-4: Mitigation Measures Proposed as Part of the project:

None identified.

Impact Hazard-4: Mitigation Measures Identified in Other *General Plan* Elements

The City of Hercules *Hazardous Waste Management Plan* (discussed in the setting) contains several policies and recommended programs that would promote proper and safe handling of hazardous materials. These include:

- Encourage community participation in municipal household hazardous waste collection through educational and technical programs. Such programs might include distribution of educational materials, sponsoring educational events, arranging community hazardous waste collection days and investigation of potential for a permanent household hazardous waste collection facility, in accordance with the solid waste JPA. (Policy, Sec. 4.3)

Impact Hazard-4: Additional Mitigation Measures Identified in this EIR

None required.

Impact Hazard-4: Significance After Mitigation

Less-than-significant.

Impact Hazard-5: Implementation of the proposed Land Use and Circulation Elements Update would result in locating hazardous materials adjacent to sensitive receptors. This impact would be less than significant.

Hazards to project occupants and residents could occur if industries or businesses using hazardous materials were to be situated too close to sensitive receptors such as residences, schools, or sensitive open space or recreation areas. Potential land use incompatibilities would be most likely to occur around the perimeter of the project area, or at locations where residential neighborhoods may already be in place or where residential developments might be planned at some future date.

Impact Hazard-5: Mitigation Measures Proposed as Part of the Project

Implementation of the following proposed Land Use Element policies and objectives would reduce the potential for land use incompatibility resulting from locating hazardous materials adjacent to sensitive receptors.

Policy 3B.1: The planning and development of commercial and industrial areas should evaluate and minimize the effects on existing residential areas.

Objective 13: Minimize the impacts from incompatible land uses on existing and planned development areas.

Policy 13A: Create a transition between residential neighborhoods and commercial/industrial areas, except where mixed uses are desirable (e.g., live/work space and other designated areas). The transition should separate land uses that might be incompatible if located in close proximity. Land uses must minimize adverse impacts and those that would not negatively impact adjoining properties should be encouraged.

Impact Hazard-5: Mitigation Measures Identified in Other *General Plan* Elements

Implementation of the following recommended programs in the Hazardous Waste Management Plan would act to mitigate this potential impact.

- Establish and maintain a data base on hazardous materials handled, and hazardous waste managed within the City's sphere of influence (consistent with AB 2125 (1986)). The data base should contain information to facilitate land use decisions such as the permitting of new facilities which generate or use hazardous waste or materials and the proximity of development to hazardous sites as well as residential areas. This will encourage development of compatible uses and provide the City with mechanisms to develop appropriate regulatory guidelines and incident response procedures. (Program, Sec. 4.4)

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- Participate, in conjunction with appropriate County and State agencies, in monitoring programs for air and water which will adequately protect the health and safety of Hercules citizens from potential exposures to hazardous materials on a sustained basis and which will alert citizens to any incidents or short-term threats of exposure. (Program, Sec. 4.4)

These recommendations of the City Hazardous Waste Management Plan, as well as provisions of the Hercules Municipal Code, Title 10, Chapter 13, that control development and maintenance of hazardous waste facilities within the City (City of Hercules, 1991b), would act to prevent this potential impact and protect the health and environment of the City residents.

Impact Hazard-5: Additional Mitigation Measures Identified in this EIR

None required.

Impact Hazard-5: Significance After Mitigation

Less-than-significant.

Impact Hazard-6: Transport of hazardous materials and wastes would result indirectly in greater potential for accidents involving hazardous materials. This would be a less-than-significant impact.

Trucking on highways and local streets is only one method of transporting hazardous materials and waste in Contra Costa County. Data on hazardous waste transport within the County is presented in the *County Hazardous Waste Management Plan*, where Contra Costa County's policies regarding transportation of hazardous materials and wastes, including emergency response procedures, are discussed (Contra Costa County, 1989). Approximately 7 percent of all highway accidents involve trucks; Table 10-A in the *County Hazardous Waste Management Plan* presents data on accident rates in the County. The California Highway Patrol estimates that 15 percent of trucks in rural areas and 25 percent of trucks in urban areas carry hazardous materials (Sacramento County Environmental Management Department, 1989). Accidents also occur on local streets, and trucks use local streets to collect the wastes, but hazardous waste haulers have very low accident rates. An accident involving hazardous materials or wastes during vehicular transport could result in any of the following impacts:

- (1) Direct exposure of motorists and emergency responders (*i.e.*, firefighters, highway patrol officers, ambulance workers, paramedics, Caltrans workers, etc.) to hazardous materials, resulting in acute and chronic health effects.

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- (2) Contamination of the roadway and surrounding environment due to uncontained runoff from the incident.
- (3) Exposure of residents and other occupants of surrounding areas to increased health risks as a result of a gaseous materials release.
- (4) Destruction of the environment and structures and injury to humans as a result of a fire associated with a hazardous materials release.

Implementation of the updated Land Use and Circulation Elements might marginally increase the probability of an accident occurring or the actual frequency of accidents, but would not change the type of accident that might occur. Since hazardous material packaging and transportation requirements are stringent, and since accident rates involving hazardous materials are very low, this impact might not be significant, even without mitigation.

Impact Hazard-6: Mitigation Measures Proposed as Part of the Project:

None identified.

Impact Hazard-6: Mitigation Measures Identified in Other *General Plan* Elements:

None identified.

Impact Hazard-6: Additional Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on the following mitigation measure:

Hazard-6: For each specific project that would generate hazardous waste, the City shall require as a condition of building permit and/or business license approval that the project sponsor prepare a hazardous material transportation program. The transportation program shall identify the location of the new facility or use and designate either (1) specific routes to be used for transport of hazardous materials and wastes to and from the facility, or (2) specific routes to be avoided during transport of hazardous materials and wastes to and from the facility. Routes would be selected to minimize proximity to sensitive receptors to the greatest practical degree. Passage through residential neighborhoods should be minimized, and parking of waste haulers on residential streets should be prohibited. The City shall review and approve the applicant's hazardous material transportation program or, working with the applicant, modify it to the satisfaction of both parties. The City shall require that the applicant provide a copy of the program to the Rodeo-Hercules Fire Protection District. Documentation to that effect shall be added to the administrative record.

Impact Hazard-6: Significance After Mitigation

Less-than-significant.

Impact Hazard-7: Generation of hazardous waste by new industries in the project area (as discussed under Impact Hazard-3) would add to cumulative hazardous waste disposal requirements in the County. Cleanup and disposal of any contaminated soils within the project area (as discussed under Impact Hazard-1) would increase the cumulative burden on existing landfill storage capacity. This would be an unavoidable significant impact.

Hazardous wastes generated by newly developed industries in Hercules would have to be recycled, treated, or otherwise disposed with other wastes generated throughout the County, adding to the total volume. In addition, if contaminated soil were removed from the project area during buildout, this too would contribute to cumulative impacts on the region's waste handling capacity.

Treatment facilities and landfill space for hazardous waste are limited. As of 1990, federal "land ban" legislation effectively prohibited disposal of untreated wastes in landfills. Available information on past land use offers no reason to suspect that large amounts of contaminated soils are present in the project area; because hazardous waste landfill space is scarce, and environmentally acceptable hazardous waste treatment technologies have yet to be developed fully, handling of contaminated soils is an increasingly important problem.

Impact Hazard-7: Mitigation Measures Proposed as Part of the Project

The following two measures would be implemented as part of the project:

Hazard-7a: The Source Reduction and Recycling Element of the City's General Plan encourages waste minimization and includes plans and programs for handling special wastes that might be hazardous, such as contaminated soil and industrial sludge (City of Hercules, 1991a).

Hazard-7b The City's Hazardous Waste Management Plan (Network Environmental Systems, 1990) also addresses waste minimization by encouraging waste minimization by local businesses through source reduction, product substitution, development of alternative technologies, recycling, or other effective means. The Hazardous Waste Management Plan goes on to recommends that the City provide staff and work with the local business community to undertake and encourage a program of identifying waste minimization opportunities or procedures for local industry. Procedures developed should encourage source reduction, recycling, reuse, and on-site treatment.

Impact Hazard-7: Mitigation Measures identified in other Elements of the *General Plan*

None identified.

Impact Hazard-7: Mitigation Measures Identified in this EIR:

None identified.

Impact Hazard-7: Significance After Mitigation

The impact would remain unavoidable and significant.

REFERENCES - Hazardous Materials

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IV. Environmental Setting, Impacts and Mitigation Measures
G. Hazardous Materials

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H. CULTURAL RESOURCES

SETTING

Holman & Associates conducted a field survey and literature review to determine the presence of prehistoric or historic cultural resources on parcels 1 - 14 (Holman & Associates, 1991). The Northwest Information Center at Sonoma State University conducted a separate literature review for parcels A - I (Psota, 1993). This section summarizes the results of the field survey and two literature reviews. Both reports are on file with the City of Hercules' Community and Business Development Department.

Prehistoric Resources

In the northwest portion of Contra Costa County, prehistoric sites are generally found near the edge of historic bay margins, on valley and midslope terraces, and in hilly areas on terraces near seasonal watercourses. Continual occupation of bay margins in this area of Contra Costa County has yielded numerous aboriginal village and camp sites; a combination of bay shellfish and fish resources, and the presence of an environment that attracted both wildlife and birds, made these locations attractive as living areas (Psota, 1993).

The 1991 literature review identified one confirmed prehistoric site (CA-CCO-370), which is located on Parcel 1 within the confines of the former administrative center of the Hercules Powder Company. Preservation of the site has been facilitated by the conservation of a number of buildings in the City's Historic District (Holman & Associates, 1991). The 1993 literature review identified one unconfirmed prehistoric site (CA-CCO-248) within or adjacent to Parcel I. Early notes do not provide enough information to determine the exact location of CA-CCO-248. In 1910, the site was described as "a scant deposit of what was once probably a large village." The general vicinity of the site was disturbed by the construction of a nearby dam (Psota, 1993).

In the late 1800's, Native Americans who lived in the Hercules vicinity spoke the Xucyun Ohlone language. An ethnographic Native American site may be located within or adjacent to the unsurveyed portions of Parcel C (Northwest Information Center, 1993). Parcels A, I and 1 - 4 exhibit features that were attractive as a living area, and could also be sensitive areas for similar prehistoric resources (Psota, 1993; Holman & Associates, 1991).

IV. Environmental Setting, Impacts and Mitigation Measures

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Parcel B, part of Parcel C, Parcels D - H, and Parcels 5 - 14 lie further from Refugio Creek and San Pablo Bay, and have less potential to contain prehistoric cultural resources. Some of these parcels have been disturbed by construction activities associated with the development of roadways and other projects (ESA, 1993).

Historic Resources

Located within the Pinole land-grant, Hercules was established in the late 1800s as a company town of the Hercules Powder Company. At the company's height, the company's land was 3,000 acres and included the use of many gullies for mixing and packing explosives. The gullies separated mixing and packing operations and provided a safety feature for possible explosions. Parcel A, part of Parcel C, and Parcel I are located partially or entirely in gullies and may contain archaeological deposits such as dynamite magazines (Psota, 1993).

Several Hercules Powder Company buildings and Victorian-style homes remain from the historic company town. The Powder Company buildings are located entirely on Parcel 1 and include an administrative center, office and various plant buildings. The company administrative offices are listed in the National Register of Historic Places (Psota, 1993). The City recognizes the other buildings as being an important historical resource (City of Hercules, 1990). Other remaining Powder Company structures include rusted industrial framework, pipelines and tanks. The City does not regard these structures as an important historical resource. Their eligibility for the National Register Historic Places has not been determined (City of Hercules, 1990).

In 1977, the City commissioned an architectural evaluation of the Hercules Powder Company buildings and Victorian-style company homes. As a result of the study, the City designated buildings that would be considered for conservation or demolition, and subsequently expanded the Historic District. The company homes were renovated and relocated to the expanded Historic District area, south of the former administrative center and adjacent to Parcels 1 and C. In 1980, the company homes were listed in the National Register of Historic Places (National Register of Historic Places, 1993).

The literature reviews identified no known historic resources on Parcels B, D - H and 2 - 14 (Psota, 1993; Holman & Associates, 1991).

IMPACTS AND MITIGATION MEASURES

Significance Criteria

According to Appendix G of the CEQA *Guidelines*, a project would normally be considered to have a significant adverse impact on the environment if it would disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group; or a paleontological site except as part of a scientific study. For purposes of the Land Use Element Update, potentially significant environmental impacts are considered to be present when the proposed land use designations represent a change from the historic use of a property or structure, permit alterations to the historic character, or disturb prehistoric subsurface or cultural deposits during excavation.

Impacts

Impact Cultural-1: Development consistent with the proposed Land Use and Circulation Elements Update could result in damage to known or unknown prehistoric archaeological resources. This would be considered a significant impact.

According to the literature review, there is one confirmed site (CA-CCO-370) within the confines of the former administrative building of Hercules Powder Company on Parcel 1, and an unconfirmed site (CA-CCO-248) on or adjacent to Parcel I.

Policy 1A of the proposed Land Use Element Update encourages development consistent with the land use map on each of the 24 parcels. Development on these parcels could result in "disruption" or "adverse effects" to prehistoric archaeological resources where construction involves land alteration activities (such as clearing vegetation, grading, driving heavy vehicles, soil compacting, and landscaping).

Impact Cultural-1: Mitigation Measures Proposed as Part of the Project

Because site CA-CCO-370 is located within the former administrative building of the Hercules Powder Company, the following mitigation measures from the proposed Land Use Element Update would facilitate preservation of the prehistoric site:

Policy 8A: Preserve and enhance the historic district area.

IV. Environmental Setting, Impacts and Mitigation Measures

H. Cultural Resources

Program 8A.1: Develop plans to preserve and rehabilitate key historic buildings but not the former plant equipment and manufacturing structures.

Program 8A.2: Prepare a detailed study of the Historic Town Center and adjoining areas (including Hercules Point) in order to define the appropriate mix of public and private land uses, design guidelines, preservation key buildings and vegetation (e.g. trees) and trails.

Impact Cultural-1: Mitigation Measures identified by other Elements of the *General Plan*

None identified.

Impact Cultural-1: Additional Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on the following cultural resources mitigation program:

Cultural-1a: Prior to development on Parcels 1 - 4, A and C, an attempt should be made through a combination of archival research and in-field testing to identify areas that may have been used by Native American populations. Areas containing prehistoric deposits would be mapped; evaluation of their significance would follow only in those areas where future development might affect the resources (Holman, 1991)

Cultural-1b: The City should enact the following program prior to any development in the vicinity of CA-CCO-370 and CA-CCO-248 on Parcels 1 and I, respectively. The program shall be conducted under the guidance of Appendix K of the *CEQA Guidelines*.

The program would also apply to Parcels A, C, and 1-4, where the potential for Native American remains exists.

- Prior to excavation and construction on the above parcels, the prime construction contractor and any subcontractor(s) would be cautioned on the legal and/or regulatory implications of knowingly destroying cultural resources or removing artifacts, human remains, bottles, and other cultural materials from the project site.
- The project sponsor would identify a qualified archaeologist prior to any demolition, excavation, or construction. The City would approve the project sponsor's selection for a qualified archaeologist. The archaeologist would have the authority to temporarily halt excavation and construction activities in the immediate vicinity (ten-meter radius) of a find if significant or potentially significant cultural resources are exposed and/or adversely affected by construction operations.
- Reasonable time would be allowed for the qualified archaeologist to notify the proper authorities for a more detailed inspection and examination of the exposed cultural resources. During this time, excavation and construction would not be

IV. Environmental Setting, Impacts and Mitigation Measures

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allowed in the immediate vicinity of the find; however, those activities could continue in other areas of the project site.

- If any find were determined to be significant by the qualified archaeologist, representatives of the construction contractor and the City, the qualified archaeologist, and a representative of the Native American community (if the discover is an aboriginal burial) would meet to determine the appropriate course of action.
- All cultural materials recovered as part of the monitoring program would be subject to scientific analysis, professional museum curation, and a report prepared according to current professional standards.

Cultural-1c: If previously unknown subsurface cultural resources are discovered during excavation activities on the identified parcels or elsewhere in the study area, excavation would be temporarily halted and an archaeologist consulted as to the importance of the resources. Should the archaeologist determine that the resources are important, the project sponsor would follow the procedure described in Mitigation Measure Cultural-1b.

Impact Cultural-1: Significance After Mitigation

Implementation of the above measures would mitigate the impact to a less-than-significant level.

Impact Cultural-2: Development consistent with the proposed Land Use and Circulation Elements Update could result in damage to known or unknown historic archaeological resources. This would be a significant impact.

According to the literature review, portions of Parcels A, C, and I are in gullies and have the potential to contain archaeological deposits such as dynamite magazines. Development on these parcels could disrupt or affect a historic archaeological resource.

Impact Cultural-2: Mitigation Measures Proposed as Part of the Project

None identified.

Impact Cultural-2: Mitigation Measures identified by other Elements of the *General Plan*

None identified.

Impact Cultural-2: Mitigation Measures Identified in this EIR

Mitigation Measures Cultural-1b and Cultural-1c would also apply to future development proposals for Parcels A, C, and I.

Impact Cultural-2: Significance After Mitigation

Implementation of the above measures would mitigate the impact to a less-than-significant level.

Impact Cultural-3: Development consistent with the proposed Land Use and Circulation Elements Update could result in damage to known historical resources. This would be considered a significant impact.

As discussed above, the former administrative center of the Hercules Powder Company and Victorian-style company homes in the Historic District are listed in the National Register of Historic Places. The proposed Land Use Element contains a "Historic Town Center" designation that would allow the reuse of existing company buildings, and the addition of new buildings in the Historic District. Development on Parcel 1 or in the vicinity of Parcel C could affect these resources.

Impact Cultural-3: Mitigation Measures Proposed as Part of the Project

The following policies or objectives are in the proposed Land Use Element Update, and may be used as mitigation measures:

Policies 8A.1 and 8A.2 discussed above.

Impact Cultural-1: Mitigation Measures identified by other Elements of the *General Plan*

None identified.

Impact Cultural-3: Mitigation Measures Identified in this EIR

Cultural-3a: Prior to development on Parcels 1 and C, the City should initiate an architectural evaluation of the remaining Hercules Powder Company buildings. Since the architectural evaluation was done in 1977, the State Historic Preservation Office has altered its definition of what is historically significant. At present any structure 45 years or older may qualify as significant under CEQA (Holman & Associates, 1991). The elements of architectural evaluation program should include:

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- An architectural evaluation of remaining company buildings by a qualified architectural historian.
- A determination of whether the remaining buildings are eligible for listing in the National Register of Historic Places.
- On the basis of the above findings, the City should take action to commit the eligible buildings to permanent conservation by having them listed in the National Register of Historic Places. The City could encourage adaptive reuse of listed buildings, including historically sensitive restoration, as a means of preserving eligible structures. Restoration and renovation of buildings should be performed in accordance with the "Secretary of the Interior's Standards for the Treatment of Historic Properties." The standards serve as guidelines for rehabilitation, restoration, preservation, retaining and preserving historic character of the property.
- If the above findings show that a building is not eligible for the National Register of Historic Places, then the following measure should be implemented:

Prior to development on many of the 24 parcels, a Phase II historic resources evaluation shall be conducted. Development is defined here as:

Significant changes to building uses and/or land uses;
The construction of new buildings;
Significant exterior alterations to existing buildings, including demolition; or
An increase in development intensity on a parcel.

If a Phase II evaluation identifies historic resources on a parcel, appropriate mitigation measures shall be incorporated into the project design using widely accepted standards for historic resources management, such as the *Secretary of the Interior's Guidelines for Rehabilitation* and the State Historic Building Code.

Impact Cultural-3: Significance after Mitigation

The above mitigation measures would reduce the impact to a less-than-significant level.

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IV. Environmental Setting, Impacts and Mitigation Measures

H. Cultural Resources

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Psota, Sunshine, Researcher II, Northwest Information Center, Sonoma State University, letter to Ken Gracey, ESA, December 7, 1993.

I. HYDROLOGY AND WATER QUALITY

SETTING

Regional Context

The City of Hercules is located mostly in the Refugio Valley along the western shore of San Pablo Bay, on the northeast side of the San Francisco Bay Area. The City is bounded by hills to the northeast and east and by Pinole Ridge to the south. Much of the Refugio Valley has elevations ranging from 7.5 to 14.3 feet above mean sea level (MSL), but the high ground surrounding portions of it rises to over 200 feet above MSL in the study area and more than 500 feet above MSL on the surrounding ridge lines. Mean annual precipitation is approximately 20 inches, and mean annual runoff is about three inches (Rantz, 1971; 1974). The general trend of drainage in the area is to the northwest into San Pablo Bay. Refugio Creek is the main drainage feature within the City (see Fig. IV.I.1).

Surface Water

Streams

Refugio Creek is the primary surface water source within the project area, with a western branch feeding into the main creek from the southwest (see Fig. IV.I.1). Refugio Creek flows into the project area from the southeast, and travels along a 3.75 mile course ending in San Pablo Bay. The portion of Refugio Creek lying west of San Pablo Avenue is tidally influenced.

Refugio Creek is not in its natural channel, apparently having been straightened, deepened, and channeled by the former Hercules Powder Company property owners in the early part of the century (Engineering-Science, Inc., 1989). The original channel of the creek is not known. A portion of Refugio Creek is culverted beneath the existing Creekside Shopping Center adjacent to I-80 and Parcel H; the creek also passes through a culvert near where the Santa Fe Railroad tracks pass beneath I-80, near Parcels 9 and 10.

A tidal slough or tributary also drains a small watershed area on the west side of Refugio Valley. This tidal slough originates above a roughly one-acre pond previously used as an industrial water supply source and wastewater conveyance system during early operations of the Hercules Powder Company plant (EDAW, Inc., 1987). A marsh area also exists within the central portion of a parcel on the south side of Refugio Creek (Parcel 4; see below).

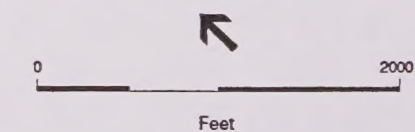


 Areas of 100-Year Flooding;
Base Flood Elevations Determined

1, A Parcel Reference

SOURCE: Hercules General Plan

NOTE: This map is intended to show general areas of potential geologic constraints of planning purposes only. Site-specific geologic investigations should be performed prior to development.



Hercules General Plan Land Use and
Circulation Elements Update / 930314 ■

Figure IV.I.1
Flood Prone Areas

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Past planning studies including the City's Redevelopment Plan have included proposals to realign Refugio Creek to help control flood conditions. The re-alignment of Refugio Creek would require a Streambed Alteration Permit from the California Department of Fish and Game (CDFG), as well as approval from the U.S. Army Corps of Engineers in consultation with the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service. The plan would also have to comply with the Flood Policies outlined in the Safety Element of the Hercules *General Plan*. (See discussion under Plans and Policies, below).

Currently, there is no U.S. Geologic Survey stream gauging information regarding flows within Refugio Creek, but a hydraulic analysis has been completed in an attempt to predict flows (Hydrocomp, Inc., 1987). It should be noted that the area has recently undergone five years of drought, so precipitation and runoff figures may be below normal.

Coastal Issues

The City of Hercules is adjacent to San Pablo Bay and is influenced by its waves, tides, and salinity. Existing waterfront development around Hercules Point, including a wharf, was constructed by the Hercules Powder Company. Extensive mudflats occur in shoal areas offshore, extending over a quarter mile out in some areas. Water depths offshore are very shallow, less than 12 feet deep for almost a mile offshore.

The highest tide on record is approximately 7.2 feet; however, wave heights could be substantially larger during a storm (Engineering-Science, Inc., 1989).

Flooding

Flooding is a recognized hazard in some areas of Hercules. Storm water flooding of Refugio Valley occurs during periods of heavy rainfall and runoff, coincident with high tides in Refugio Creek. A backwater effect is created that prevents effective flood water discharge to San Pablo Bay. Extensive flooding of Refugio Creek occurred during severe storms of January 1983, with the creek overflowing its banks.

As shown in Figure IV.I.1, some of the 24 study area parcels or portions thereof are located in 100-year flood zones. Specifically, the northern portion of Parcel 1, and portions of Parcels 3, 9, 11, and 12 are located within the 100-year floodplain of Refugio Creek. Parcels A and H are close to Refugio Creek but not actually within its floodplain. Parcel 2 may be subject to coastal

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flooding due to wave run-up during storms. Parcels 1, 3, 4, 9, 10, 13 and 14 are subject to ponding of water in low areas (City of Hercules, 1991). Overland and sheet flow of runoff occurs from most of these parcels; much of the runoff enters either Refugio Creek or Rodeo Creek, just north of the study area. Runoff in urban areas increases with the amount of impermeable surfaces created. Drainage facilities help control this runoff.

Erosion Hazards

There are three types of erosion hazards within the study area. The first is coastal erosion from waves. This primarily affects Parcel 2, although portions of Parcels 1 and 6 could also be affected. The second is splash erosion from precipitation. This hazard particularly affects Parcel 8 (City of Hercules, 1991; ESA, 1991). The third type of erosion hazard, and the most prevalent and severe within the study area, is gullying of steep hillsides. Gullying currently exists within Parcel 7, where the topography is steep, and could occur in Parcel 13 with increased runoff (City of Hercules, 1991; ESA, 1991).

Erosion is amplified by the presence of soils with moderate to high erosion potential. This issue is discussed more fully in the Geology and Soils analysis (Section IV.J.) of this EIR. Such soils occur on all parcels in the study area with the exception of Parcels 2, 9, 10, 11, F, and G.

Groundwater

Groundwater underlies Refugio Valley at relatively shallow depths. There are likely several distinct water bearing zones in the bedded sediments in the valley, including a very shallow, but discontinuous perched zone. Throughout the valley, and depending on elevation, the winter water table is typically less than two to three feet deep, and declines to five to six feet during most summer months. Groundwater in the very shallow zone may be only six inches deep in the winter months of wet years. Refugio Creek is thus fed by tides and surface water runoff during winter months and by groundwater discharge during the summer months.

Water Quality

Water quality in the study area is affected by a number of pollutants that are carried into surface and ground waters by runoff. These pollutants include oil and grease from roadways; agricultural pollutants and fecal coliform bacteria from crop and grazing lands; low levels of heavy metals from the former munitions factory on Parcel 1, or from the watershed area

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southwest of I-80 (EDAW, 1987); and general debris from roadways. Poor surface water quality resulting from these pollutant sources has been found in Parcels 1, 7, 9, 10, and 11; and standing (ponded) water of poor quality has been found on Parcel 4 (ESA, 1991).

Monitoring and water quality analysis completed by WESCO in June 1983 indicated the shallow groundwater to be brackish and non-potable, but also not substantially affected by previous industrial uses of the properties (EDAW, Inc., 1987). (See Section IV.G., Hazardous Materials, for additional discussion.)

Regulations, Plans and Policies

Federal Requirements

A Section 404 Permit would be needed from the U.S. Army Corps of Engineers (Corps) for any dredging or filling of streams, such as a proposed channel realignment of Refugio Creek; and for dredging or filling in any low-lying areas behind coastal dikes. Realignment of the Refugio Creek riparian corridor may affect wetlands and may require formal wetland delineation and a permit approving filling activities from the Corps, in consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. In some cases the Corps may issue a Nationwide Permit for fill with no formal agency notification or public review. A Nationwide Permit may be issued to fill wetlands between one and ten acres in instances where no threatened or endangered species habitat exists. Development which could affect salt marsh wetlands by Hercules Point would also be under the jurisdiction of the San Francisco Bay Conservation and Development Commission (BCDC). (See Section IV.D, Vegetation and Wildlife.)

State Requirements

Development including any alterations of Refugio Creek, such as a proposed channel realignment, would require a Streambed Alteration Agreement from the California Department of Fish and Game (CDFG).

Hercules General Plan

The Seismic Safety/Safety Element of the Hercules *General Plan* requires that flood hazards be taken into account during the planning process for proposed development (City of Hercules, 1989). The objective of the Seismic Safety/Safety Element is to reduce loss of life, injuries,

IV. Environmental Setting, Impacts and Mitigation Measures

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property damage, and economic and social dislocations resulting from future flooding and geologic hazards. (See Mitigation Measure Hydrology-1 for specific policies applicable to the proposed project.)

The City of Hercules *General Plan* and Redevelopment Plan call for the realigning and widening of Refugio Creek to help stem flood conditions. Any modification to Refugio Creek would require a streambed alteration permit from the California Department of Fish and Game, as well as approval from the U.S. Army Corps of Engineers, as noted above. Future development would also have to comply with the Flood Policies outlined in the Seismic Safety/Safety Element of the Hercules *General Plan*. In addition, the study area may be subject to permit requirements from the State Water Resources Control Board, the Regional Water Quality Control Board, and the State Department of Water Resources.

The BCDC requires a Development Permit for any dredging, filling, or land use changes for all tidal areas and within 100 feet of tidal areas. The project must be consistent with the McAteer-Petris Act and the San Francisco Bay Plan. BCDC has also developed advisory policies that the City of Hercules may wish to follow, including:

- Appointing an Engineering Criteria Review Board to establish and revise safety criteria for Bay fills and structures thereon; review projects for adequacy of specific safety provisions; prescribe an inspection system for projects on Bay fills; and gather and disseminate performance data from specific projects.
- Recommending that structures built on fill at or near the shoreline have adequate height above estimated wave runup levels, or sufficient setbacks from the shoreline to avoid dynamic wave energy.
- Recommending that structures be built sufficiently high to be above the highest estimated tide level for the expected life of the project; or sufficiently protected by levees to allow for the effects of subsidence during the life of the project.

IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA Guidelines states that a project normally would have a significant effect if it would:

- substantially degrade water quality;
- contaminate a public water supply;

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- substantially degrade or deplete ground water resources;
- interfere substantially with ground water recharge; or
- cause substantial flooding, erosion, or siltation.

Certain assumptions regarding impact significance are made based upon information contained in the Setting above. For example, because groundwater in the Hercules area is brackish and non-potable, potential impacts to its quantity and quality are not considered significant. For the purposes of this EIR, development of the City of Hercules under the Land Use and Circulation Elements Update would have a significant impact if it would:

- Result in development subject to 100-year flooding;
- Increase the potential for flooding due to increased runoff; or
- Cause or increase pollution of surface waters via runoff.

Impacts

Impact Hydrology-1: Development consistent with the proposed Land Use and Circulation Elements Update would place structures and an increased population in areas already subject to 100-year flooding from Refugio Creek and from coastal storms. Additionally, construction of new impermeable surfaces could increase runoff and contribute to flooding. This would be a significant impact.

Portions of the study area would be subject to 100-year flooding from Refugio Creek to varying base elevations. Any increase in impermeable surface cover over existing vegetation or soil in these areas would increase runoff that could also lead to, or heighten, flood conditions. As shown by Figure IV.I.1, portions of Parcels 1, 3, 9, 11, and 12 lie within the floodplain of Refugio Creek. Although the purpose of channelizing the creek would be to reduce the potential for flooding, new development could be exposed to flood conditions. This effect could be exacerbated by an increase in impermeable surfaces that would be accompanied with new development that occurs near the creek.

Development on Parcel 11 would face relatively severe constraints due to the presence of the East Branch of Refugio Creek through the middle of the parcel. For this site to be developed, the creek would probably need to be installed in a large culvert beneath a substantial amount of fill. There may be regulatory constraints associated with this action due to the presence of riparian wetlands along the creek. Changing the channel location or configuration of Refugio Creek would result in changes in drainage patterns, and increase flooding in some areas.

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Development on Parcel 2 (waterfront commercial) could also place structures and population in a zone of coastal flooding, up to a base flood elevation of six feet. (See Section IV.J., Geology and Soils for a discussion of earthquake-induced flooding, as from tsunami.)

Impact Hydrology-1: Mitigation Measures Proposed as Part of the Project

The following program is proposed as part of the Land Use Element Update:

Program 13B: Design of the flood control improvements along Refugio Creek should be done in a manner to function as a transition area between land uses.

Impact Hydrology-1: Mitigation Measures Identified in Other *General Plan* Elements

The following measure is included in the *General Plan* Growth Management Element:

All new structures shall be located outside the Flood Zones A and B as designated by the Flood Insurance Rate Map (prepared by the Federal Emergency Management Agency (FEMA)); or, insure that the finished floor elevation is at least one foot above the flood elevation as determined by FEMA. Development of any property shall not significantly increase the flooding potential at downstream areas, or otherwise significantly impact or aggravate a flooding problem at downstream properties. (Growth Management Element Performance Standard III.E.7.)

The following Seismic Safety/Safety Element policies contained in the City's *General Plan* would help reduce the impact to a less-than-significant level:

Policy C.2.e.1: Refugio Creek Channel should be improved for existing drainage so that adequate capacity for expected flood flows is provided.

Policy C.2.e.2: The City should develop ordinances and enforcement mechanisms which preserve, develop and maintain drainage courses.

Policy C.2.e.3: Review of any significant project proposals for areas which are not presently in flood zones should include an evaluation of increased downstream flows resulting from the project.

Policy C.2.e.4: Finished floor elevation of all developments must be one foot above the 100 year flood elevations prescribed on the Flood Insurance Rate Map.

Policy C.2.e.5: In order to protect lives and property, intensive development should not be permitted in reclaimed areas unless flood protection in such areas is constructed to the standards of the Flood Disaster Protection Act of 1973.

IV. Environmental Setting, Impacts and Mitigation Measures

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Impact Hydrology-1: Additional Mitigation Measures Identified in this EIR

Hydrology-1a: The City shall review and refine, as necessary, its Master Drainage Plan, including specifics for drainage on individual parcels (except those such as Parcel 6 which already have a drainage infrastructure), prior to approval of any development in the study area. This is an important measure since the City's wastewater system is at capacity, and since new drainage infrastructure would have to be built to accommodate the increase in runoff.

Hydrology-1b: For each proposed development project, runoff increase calculations for the parcel at full build-out should be measured against estimates of existing runoff to ensure that no flooding would result.

Impact Hydrology-1: Significance After Mitigation

Implementation of the mitigation measures listed above would reduce the impact to a less-than-significant level. Measures to mitigate flooding may also have impacts to Biological Resources, as discussed in Section IV.D. of the EIR.

Impact Hydrology-2: Development under the Land Use and Circulation Elements Update could result in increased non-point-source and point-source pollution of surface waters from construction activity and vehicle use. This would be a significant impact.

The effects of increased sedimentation are discussed in the Geology and Soils analysis (Section IV.J.) of this report. However, in addition to increased sediment, development of the study area parcels could increase other types of non-point source pollution. Runoff from streets, construction sites, roofs, and parking lots contains typical urban pollutants such as oil, grease, fuel, rubber, heavy metals, and solvents. Exhaust from motor vehicles contains lead and particulates that could be picked up by runoff and carried into nearby surface water bodies, such as San Pablo Bay. Degradation of surface water quality would be a significant impact.

New commercial facilities could introduce point sources of pollution for any pollution source if it would not discharge into an established issue sewer system. Since these sources would require a National Pollution Discharge Elimination System (NPDES) permit, they would not be considered significant sources of pollution.

Degradation of water quality due to introduced pollutants is already a concern in the study area, particularly in Parcels 1, 4, 7, 9, 10, and 11. Development of these areas could increase the load

of nutrients, metals, oil and grease carried in runoff from roadways and industrial sources to surface and ground waters.

Impact Hydrology-2: Mitigation Measures Proposed as Part of the Project

None identified.

Impact Hydrology-2: Additional Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on the following mitigation measures:

Hydrology-2a: Develop a Master Water Quality Control Plan for the City, including measures to clean up existing contaminated water resources in various parcels, to identify and remove or mitigate existing sources of pollution, and to develop ways of preventing further pollution such as specific water treatment policies for industries and retention basins for surface runoff suspected of carrying roadway pollutants. Such a plan must be approved by the City Engineer and should be reviewed by the Regional Water Quality Control Board and State Department of Water Resources for correctness and thoroughness, prior to implementation.

Hydrology-2b: Develop a set of best management practices (BMPs) for developers to follow.

Implementation of best management practices by the developers would further help to mitigate this impact. Such practices include, but are not limited to:

- Use of stormwater retention or detention structures;
- The use of oil and water separators; and
- The use of sediment traps.

Particles of sediment adsorb many of the heavy metal pollutants from automobile exhaust, as well as trapping oil and grease within their pores. Through use of water separators, and sediment traps in conjunction with settling basins, many of the pollutants could be removed.

Impact Hydrology-2: Significance After Mitigation

Less-than-significant.

IV. Environmental Setting, Impacts and Mitigation Measures
I. Hydrology and Water Quality

REFERENCES - Hydrology and Water Quality

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J. GEOLOGY AND SOILS

SETTING

The Setting provides a description of the geology, topography and slope, and soils in the City of Hercules, including all 24 parcels in the study area. Following the general description, each of the 24 parcels is briefly described individually. A description of seismic hazards follows the discussion of parcel-specific geologic and soils conditions.

Geology

Regional geology in the City of Hercules consists of alluvial (stream-related) deposits of Quaternary age (less than two million years old) on the floor of the Refugio Valley, surrounded by marine sedimentary rocks of Miocene age (between five and 23 million years old) in the adjacent uplands. The bedrock units exposed on the hills above the valley floor consist of Rodeo Shale and Hambre Sandstone to the south, and Briones Sandstone and Cierbo Sandstone to the north (Sims, et al., 1973). In many places, the bedrock is overlain by colluvium (loose soil and rock fragments that have moved downslope).

Alluvium in the Refugio Valley varies from about 12 feet in thickness in the southeast portion of the valley to about 80 feet in thickness near the valley mouth (City of Hercules, 1989). Near San Pablo Bay, a few feet of fine-grained flood plain alluvium cap weak and highly compressible bay mud deposits (EDAW, 1987). The bay mud has an estimated thickness of 35 to 40 feet along the western edge of the valley, thinning out in an up-valley direction (EDAW, 1987).

Much of the older valley floor deposits are covered by loose, artificial fill. Fill materials were placed during operation of the Hercules Powder Company, and consist of soils and bedrock excavated from adjacent hillside areas; in some places, the fill includes rubble consisting of bricks, asphalt, concrete, glass, and wood (EDAW, 1987).

Topography and Slope

Most of Hercules lies within the lower portion of the Refugio Valley, adjacent to San Francisco Bay. The valley floor is fairly level. Most slopes on the uplands surrounding the valley floor are fairly gentle (less than 15 percent), although some slopes in the study area are between 15 and 30 percent, and exceed 30 percent in very limited areas. Elevations range from about five feet above sea level along the bay margin to 200 feet in the northeastern portion of the study area.

IV. Environmental Setting, Impacts and Mitigation Measures

J. Geology and Soils

Landslides and soil creep have occurred in the past in the steeper portions of the study area. Two landslides have been mapped along the railroad embankment in the northwestern portion of Parcel 6, the North Shore Business Park (Frizzell, et. al, 1974; EDAW, 1987). These landslides measured approximately 200 to 500 feet in their longest dimension. Approximately eight closely spaced landslide deposits have been identified on the relatively steep, north- to northeast-facing slopes in the western portion of Parcel 3 (Gelsar, Inc.) and the center of Parcel 4 (Hercules, Inc./San Pablo site) (EIP Associates, 1989). These landslides measured approximately 100 to 250 feet in their longest dimension.

Soils

Clear Lake Clay lies on top of the alluvial deposits on the valley floor. The clay is a poorly drained soil with low erosion potential, low strength, high shrink-swell potential, and high corrosivity (U.S. Soil Conservation Service, 1977). Soils in the upland areas primarily consist of Tierra Loam, a moderately-well drained soil with moderate to high erosion potential, low strength, high shrink-swell potential, and high corrosivity (U.S. Soil Conservation Service, 1977). Other soils in the upland areas consist of Los Osos Clay Loam and Sehorn Clay, both of which are well-drained soils with moderate to high erosion potential, low strength, high shrink-swell potential, and high corrosivity (U.S. Soil Conservation Service, 1977).

Parcel-Specific Conditions

The geology, topography and slope, and soils conditions of the 24 study area parcels are discussed below.

1. Hercules Properties, Inc. The eastern portion of this parcel is underlain by bay mud. Alluvium and artificial fill overlie the bay mud. The western portion of this parcel is underlain by Rodeo Shale and Hambre Sandstone. The western portion contains slopes greater than 15 percent, which potentially could be unstable unless properly mitigated. Soils include Clear Lake Clay and Tierra Loam.
2. Hercules Point. All of this parcel is underlain by bay mud overlain by alluvium and artificial fill. The parcel is relatively flat-lying with no slopes. Soils on the this parcel consist of Clear Lake Clay.
3. Gelsar, Inc. The central portion of this parcel is underlain by bay mud. The valley floor is underlain by alluvium, the upland area to the west is underlain by Rodeo Shale and Hambre Sandstone, and the upland area in the extreme northeastern corner is underlain by Briones Sandstone. Landslide deposits have been mapped in the western portion of this parcel (EIP Associates, 1989). Soils consist of Clear Lake Clay, Tierra Loam, and Los Osos Clay Loam.

IV. Environmental Setting, Impacts and Mitigation Measures
J. Geology and Soils

4. Hercules Inc./San Pablo Site. Most of this parcel is underlain by Rodeo Shale and Hambre Sandstone. The eastern portion of this parcel is underlain by alluvium. Potentially unstable slopes and previous landslide deposits are present in the central portion of this parcel (EIP Associates, 1989). Soils consist of Clear Lake Clay, Tierra Loam, and Los Osos Clay Loam.
5. MRB Site. This parcel is underlain by Hambre Sandstone. Slopes are less than 15 percent. Soils on this parcel consist of Tierra Loam.
6. North Shore Business Park. The majority of the parcel is underlain by Briones Sandstone and Cierbo Sandstone. The western portion is underlain by alluvial deposits. The northwestern margins of this parcel, near the Bay, are underlain by bay mud. (Most of the "bay-mud" area is within the railroad right-of-way.) Potentially unstable slopes are also present at the perimeter of this parcel. Steep slopes and historic landslides are present along the railroad embankment, and steep slopes are present in a small area along the northernmost boundary of this parcel (Frizzell, et al., 1974; EDAW, 1987). Soils consist of Clear Lake Clay and Tierra Loam.
7. ANR Site. This parcel is underlain by Briones Sandstone and Cierbo Sandstone. Steep slopes on the northeast and southeast margins of the parcel are potentially unstable. Soils on the parcel primarily consist of Tierra Loam.
8. Hercules Square Site. This parcel is underlain by Rodeo Shale. Slopes are generally less than 15 percent. Soils on the parcel primarily consist of Clear Lake Clay and Los Osos Clay Loam.
9. ORB Site. This parcel is underlain by alluvium. Slopes are less than 15 percent. Soils consist of Clear Lake Clay.
10. BART Site. This parcel is underlain by alluvium. The area adjacent to I-80 is constrained by slopes greater than 30 percent. Soils consist of Clear Lake Clay.
11. I-80 Exit Loop Site. This parcel is underlain by alluvium. The perimeter of the parcel is constrained by slopes greater than 30 percent. Soils consist of Sehorn Clay.
12. TABCO Site. This parcel is underlain by alluvium. Slopes are less than 15 percent. Soils consist of Clear Lake Clay and Tierra Loam.
13. Sycamore Site. The majority of this parcel is underlain by Briones Sandstone. The eastern portion of the parcel is underlain by alluvium. Slopes are less than 15 percent. Soils consist of Clear Lake Clay and Tierra Loam.
14. Five Giants Site. The western portion of this parcel is underlain by Briones Sandstone. The eastern portion of the parcel is underlain by alluvium. Slopes are less than 15 percent. Soils consist of Conejo Clay Loam, which has a moderate shrink-swell potential.
- A. Church of Nazarene Site. This site, near Refugio Creek, is likely underlain by alluvium. Slopes appear to be generally less than 15 percent. Soils consist of Clear Lake Clay and Tierra Loam.
- B. McLeod Family Site. This parcel appears to be underlain by the Hambre Sandstone. Slopes are generally less than 15 percent. Soils on this parcel consist of Tierra Loam.

IV. Environmental Setting, Impacts and Mitigation Measures

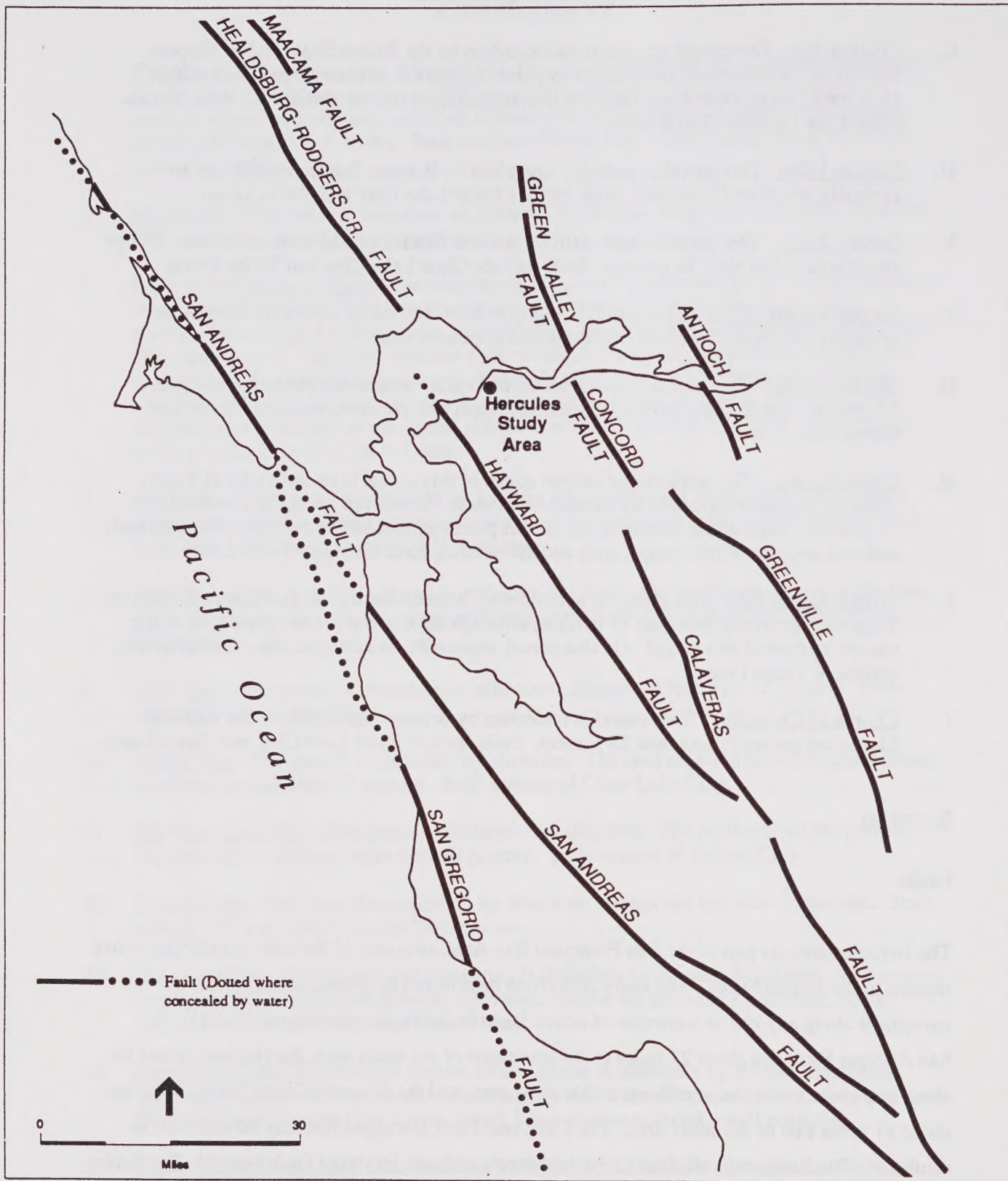
J. Geology and Soils

- C. Citation Site. This parcel appears to be underlain by the Rodeo Shale and/or Hambre Sandstone. The northern portion of this parcel appears to contain slopes greater than 15 percent, which potentially could be unstable unless properly mitigated. Soils include Clear Lake Clay and Tierra Loam.
- D. Carone-1 Site. This parcel is probably underlain by Briones Sandstone. Slopes are generally less than 15 percent. Soils include Clear Lake Clay and Tierra Loam.
- E. Carone-2 Site. This parcel is underlain by Briones Sandstone and some alluvium. Slopes are generally less than 15 percent. Soils include Clear Lake Clay and Tierra Loam.
- F. Carone Sycamore Site. This parcel is likely to be underlain by alluvium. Slopes are generally less than 15 percent. Soils consist of Sehorn Clay.
- G. Old ATSF Site. This parcel is underlain by alluvium. Slopes are generally less than 15 percent. On this site, particularly the north and east portions, soils may consist of Conejo Clay Loam.
- H. Creekside Site. The western and eastern edges of this parcel is underlain by alluvium, while the center is underlain by Briones Sandstone. Slopes are generally less than 15 percent. Soils on the northern side of this parcel consist of Sehorn Clay. On the south and east sections of this parcel, soils consist of Clear Lake Clay and Tierra Loam.
- I. Willow Center Site. This parcel is underlain by Briones Sandstone and Cierbo Sandstone. Slopes are generally less than 15 percent, although there are some steeper slopes at the eastern margin of this parcel. On this parcel, especially its northern edge, soils primarily consist of Tierra Loam.
- J. Church of Christ Site. This parcel is underlain by Briones Sandstone and/or alluvium. Slopes are generally less than 15 percent. Soils include Clear Lake Clay and Tierra Loam.

Seismicity

Faults

The Hercules area, as part of the San Francisco Bay Area, is in one of the most seismically active regions in the United States. The study area could be affected by ground shaking due to movement along any one of a number of active faults in the region (see Figure IV.J.1). The San Andreas Fault lies about 21 miles to the southwest of the study area, the Hayward Fault lies about two and a half miles southwest of the study area, and the Concord-Green Valley Fault lies about 11 miles east of the study area. The Calaveras Fault lies approximately 40 miles to the southeast. The Rodgers Creek Fault, which connects with the Hayward Fault beneath San Pablo Bay, is another major fault only about 10 miles away to the west.



SOURCE: Environmental Science Associates, Inc.

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Figure IV.J.1
Regional Fault Map

IV. Environmental Setting, Impacts and Mitigation Measures

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The study area would be subject to strong ground motion in the event of a moderate to severe earthquake in the Bay Area. The U.S. Geological Survey has estimated that there is a 67 percent probability that there will be one or more earthquakes of magnitude 7.0 or greater (comparable to the 1989 Loma Prieta earthquake) in the Bay Area in the next 30 years (U.S. Geological Survey, 1990). Ground shaking, rather than surface fault rupture, is the cause of the most damage during earthquakes (ABAG, 1987).

In addition to the active faults noted above, two inactive faults are located in the Hercules vicinity. Two traces of the Pinole Fault pass immediately southwest of Hercules and the Franklin Fault lies about three miles northeast of the study area. Neither of these two faults shows evidence of surface displacement in Quaternary time (the last two million years), and future movement along them is much more unlikely than along the active faults shown in Figure IV.J.1. However, a "swarm" of earthquakes in the Briones Hills in January 1977 may have been associated with the Pinole Fault (EIP Associates, 1989). The largest earthquake measured 4.3 on the Richter scale, and was followed by a series of 58 earthquakes (all less than Richter-magnitude 4.0) over the next three days. No surface fault rupture occurred.

The Alquist-Priolo Special Studies Zones Act requires the state to identify zones around "active" faults (those having evidence of surface displacement within about the last 11,000 years) in order to manage development near possible surface rupture sites. There are no Special Studies Zones within Hercules (the closest Special Studies Zone is along the Hayward Fault, about two and one-half to four miles to the southwest). The northern end of the Pinole Fault was originally included in a Special Studies Zone, but was removed from the active category after further analysis.

Seismic Hazards

There are four major hazards associated with earthquakes. These are fault surface rupture, ground shaking, ground failure, and flooding due to earthquake-generated waves or dam failures.

Fault Surface Rupture. In major earthquakes, fault displacement can cause rupture along the surface trace of the fault, leading to severe damage to any structures or other improvements located on the fault trace.

Ground Shaking. Because it affects a much broader area, ground shaking, rather than fault surface rupture, is the cause of the most damage during earthquakes.

Three major factors affect the severity (intensity) of ground shaking at a site in an earthquake: the size (magnitude) of the earthquake, the distance to the fault that generated the earthquake, and the geologic materials that underlie the site. Larger magnitude earthquakes cause the ground to shake harder and longer, and affect larger areas. Given similar subsurface conditions, the intensity of ground shaking decreases with distance from the causative fault. Thick, loose soils, such as uncompacted alluvium and artificial fill, tend to amplify and prolong the ground shaking, while bedrock is less susceptible to ground shaking.

The Association of Bay Area Governments (ABAG) has mapped portions of the study area's susceptibility to ground shaking as "extremely high" (the highest rating) and the maximum ground shaking intensity for those portions of the study area as "C - Very Strong" to "B - Violent" (where "A - Very Violent" is the most severe) (ABAG, 1987). These areas generally coincide with the bay mud underlying a portion of the valley floor. The approximate extent of bay mud in the study area is shown in Figure IV.J.2. The risk of ground shaking damage in the areas underlain by bay mud is rated as "extremely high" (6.1 percent expected damage and above) for tilt-up concrete buildings, "high" (4.1-5.0 percent damage) for concrete and steel buildings, and "moderate" (2.1-3.0 percent damage) to "moderately high" (3 -4 percent damage) for wood frame dwellings (ABAG, 1987).¹ The risk of ground shaking damage is much lower for the portions of the study area not underlain by bay mud, although areas underlain largely by alluvium are expected to endure strong ground shaking as well.

Ground Failure. Earthquakes can cause secondary ground failures, such as landsliding, liquefaction, lurching, and settlement. All of these involve a displacement of the ground surface due to loss of strength, failure, or compaction of the underlying materials due to ground shaking.

An earthquake could trigger landslides, particularly upon steeper slopes where slide activity has already occurred. The amount of sliding would be intensified if an earthquake were to occur during wet winter months when the slopes were in a saturated, weakened condition.

Figure IV.J.2 shows areas where slopes are greater than 15 percent.

¹ ABAG derived the expected damage from damage ratios (the cost of repairing a building divided by the cost of replacing that building, which can be viewed as a percentage loss) calculated for hypothetical large earthquakes on 31 major active faults in the region. The damage ratios resulting from each hypothetical earthquake were multiplied by their recurrence interval (probability), discounted to their present value, and then added together to estimate the composite risk. Because of the additive process used to calculate these values, they also represent cumulative damage potential from earthquakes in the Bay Area.



POTENTIAL GEOLOGIC CONSTRAINTS

- Area Underlain by Bay Mud
- Area of Potential Slope Instability
(Slopes greater than 15% and areas showing evidence of historic landslides)

1, A Parcel Reference

SOURCE: Environmental Science Associates

NOTE: Parcel B not included. Parcel B is not underlain by Bay Mud and is not in an Area of Potential Slope Instability

NOTE: This map is intended to show general areas of potential geologic constraints for planning purposes only. Site-specific geologic investigations should be performed prior to development.



0 2000
Feet

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Figure IV.J.2
Geologic Resources and Constraints

IV. Environmental Setting, Impacts and Mitigation Measures

J. Geology and Soils

Liquefaction is the sudden loss of strength in loose, saturated materials (predominantly sands) during an earthquake, which results in the temporary fluid-like behavior of those materials (much like quicksand). Liquefaction typically occurs in areas where groundwater is shallow, and materials consist of clean, poorly consolidated, fine sands. The upland areas surrounding the valley floor are underlain by bedrock and would not be subject to liquefaction. Bay mud underlying the western portion of the valley floor is not likely to liquefy, although sand seams occasionally contained within the bay mud or fine-grained alluvium or artificial fill on top of the bay mud could be susceptible to liquefaction. The liquefaction potential in the area of the rest of the valley floor generally is not known, although there is no indication that materials that would be particularly susceptible to liquefaction are present.

Lurching, or lurch cracking, is the cracking of the ground surface in soft, saturated material as a result of earthquake-induced ground shaking. Lurch cracking is likely to occur in areas of bay mud and fill in moderate to large earthquakes (Goldman, 1969). Lurch cracking can occur in water-saturated sediments, soils, and alluvium at distances of up to 75 miles from the earthquake epicenter (Goldman, 1969). The probability of lurching in the valley floor areas is unknown, but its occurrence would not be unexpected.

Differential settlement (where adjoining areas settle different amounts) most commonly occurs in loose, uncompacted materials of variable density and strength. Artificial fills on the site would likely be most susceptible to differential settlement. Transition areas between bedrock and alluvial deposits would also be subject to differential settlement.

Earthquake-Induced Inundation. Seismic activity off the coast of California could induce a tsunami, commonly but incorrectly referred to as a "tidal wave," that could enter San Francisco Bay through the Golden Gate. Tsunamis are waves that increase in size with distance traveled, and can cause destruction when they pile up at shallow shoreline areas (Ritter and Dupre, 1972). There is no evidence that any portion of Contra Costa County that is exposed to potential tsunami inundation has experienced significant damage from this phenomenon, and likelihood of damage to the City of Hercules from one is small (City of Hercules, 1989).

A major earthquake could theoretically create a seiche, a type of oscillating wave that sloshes around in an enclosed basin and can cause severe damage at the shoreline. No such wave has been recorded in San Francisco or San Pablo Bays within historic time, however.

IV. Environmental Setting, Impacts and Mitigation Measures

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A large earthquake could induce a landslide adjacent to a nearby reservoir, creating the geologic hazard known as landslide splash, an overtopping of waters resulting from earth sliding into the reservoir. Additionally, failure of reservoir dams themselves could directly result from a major earthquake. However, the City of Hercules does not lie within the path of inundation from any regional reservoirs.

Regulations, Plans and Policies

Hercules General Plan

California Government Code Section 65302 (g) requires a safety element of all city and county general plans, addressing such issues as geologic and seismic hazards. The Seismic Safety/Safety Element of the *Hercules General Plan* requires that seismic and geologic hazards be taken into account during the planning process for proposed development (City of Hercules, 1989). The basic objective of the Seismic Safety/Safety Element is to reduce loss of life, injuries, property damage, and economic and social dislocations resulting from future earthquakes and other geologic hazards. (See Mitigation Measure Geology-1 for specific policies applicable to the proposed project.)

Local Ordinances

The City of Hercules has adopted a grading ordinance that establishes standards for grading operations, requires grading permits, and provides for the approval of grading plans and the inspection of grading and construction. The grading ordinance provides for testing in areas where there are potential geologic hazards. In addition, the city has adopted the Uniform Building and Fire Codes to provide control over public safety in building design and construction.

IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the *CEQA Guidelines* states that a project normally will have a significant effect on the environment when it would:

- cause substantial flooding, erosion, or siltation; or
- expose people or structures to geologic hazards.

IV. Environmental Setting, Impacts and Mitigation Measures

J. Geology and Soils

Based on Appendix I of the CEQA *Guidelines*, a project could have a significant impact if it were to result in:

- Unstable earth conditions, or changes in geologic substructures;
- Disruptions, displacements, compaction, or overcovering of soil;
- Change in topography or ground surface relief features;
- The destruction, covering or modification of any unique geological or physical features;
- Any increase in wind or water erosion of soils, either on or off the site;
- Changes in deposition or erosion of beach sands; or changes in siltation, deposition or erosion which may modify the channel of a river or stream, or the bed of the ocean or any bay, inlet, or lake; or
- Exposure of people or property to geologic hazards, such as earthquakes, landslides, mudslides, ground failure, or similar hazards.

Because of specific site conditions, and the rarity of certain events, some geologic impacts can be ruled as being insignificant. These include impacts on unique geological features or beach sands, fault surface rupture, and impacts from tsunamis and seiches.

Impacts

Impact Geology - 1: Development consistent with the proposed Land Use and Circulation Elements Update would involve construction of facilities in a seismically active zone, characterized by a high probability of strong ground shaking. Ground shaking could pose a threat to the structural integrity of any developed structures and associated underground utility lines, as well as a threat to the welfare and safety of people occupying the sites. This would be considered a significant impact.

Each of the 24 parcels would be affected by strong ground shaking due to a moderate to severe earthquake in the Bay Area. Any development within the region is likely to experience ground shaking from a major earthquake within its operational or post-operational life span. In addition, any other structures (such as those on Parcel 1) could collapse as a result of seismic activity. The parcels on bay muds, expected to receive the strongest ground shaking resulting from an earthquake, are Parcels 1 (eastern portion), 2, 3 (central portion), and 6 (northwestern margins). Parcels on alluvium, subject to the second strongest ground shaking, are Parcels 9, 10, 11, 12, A, F, G, H, and possibly Parcel J.

The Uniform Building Code would require new development to incorporate seismic safety features.

Impact Geology-1: Mitigation Measures Proposed as Part of the Project

The following mitigation measure is a proposed program in the Land Use Element Update:

Program 8A.1: Develop plans to preserve and rehabilitate key historic buildings but not the former plant equipment and manufacturing structures.

Impact Geology-1: Mitigation Measures Identified in Other *General Plan* Elements

The following policies and implementing actions in the Seismic Safety/Safety Element contained in the City's *General Plan* would help reduce the impact to a less-than-significant level:

Policy C.1: Improperly compacted existing fills and backfills should be excavated from areas to be filled.

Policy C.2: All areas to be graded should be stripped of vegetation and the top few inches of highly organic topsoil.

Policy C.3: Organic topsoil should be stripped and stockpiled and used for landscaping.

Policy C.4: Lower valley areas where bay mud deposits are exposed or are blanketed by shallow thicknesses of poorly compacted fill will require detailed studies prior to site grading.

Policy C.5: Sidehill "sliver" cuts and fills should be avoided.

Policy C.6: Special consideration should be given to slope stability in the steep hillside areas.

Policy C.7: Steep sideslopes should be left in their natural condition where possible.

Policy C.8: Setbacks should be determined based on detailed soils investigations in individual cases opposite landslide prone slopes to reduce the potential for slide damage to improvements.

Policy C.9: Expansive soils should be considered in the design of road pavement sections.

Policy C.10: Site Planning should consider the potential of differential settlement where compressible soils exist.

Policy C.11: Areas underlain by soft bay mud will require further detailed soils investigations.

IV. Environmental Setting, Impacts and Mitigation Measures

J. Geology and Soils

Policy C.12: Slopes should be planted as soon as possible after completion of construction to develop a protective organic mat.

Policy C.13: Dense pockets of brush and trees located on steep slopes should be left intact where possible to prevent potential landsliding.

Policy C.14: The sides of the stream channel in portions of Refugio Valley should be improved to protect erosion - induced slumping. Care should be taken to maintain the natural appearance of the water-course in the open space areas.

Implementation Action 2.a. *Planning Review.* Specific plans must be prepared and adopted for each neighborhood in the City prior to approval of development plans. Safety measures will be incorporated into these specific plans to provide adequate protection from seismic, geologic and fire hazards.

The review and approval of zoning applications, tentative maps and planned unit developments will include consideration of safety policies and standards contained in the General Plan, neighborhood plans or other specific plans.

Implementation Action 2.b. *Subdivision and Grading Regulations.* The subdivision and grading regulations govern the subdivision of land, and designing and construction of site improvements. Seismic, geologic and fire hazards will be considered in review and approval of tract maps, grading and improvement plans.

Impact Geology-1: Additional Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on the following implementation programs:

Geology-1a: Require critical facilities (emergency response centers, fire and police stations, and hospitals), high-population facilities (schools, malls, or shopping centers), or industries using or generating significant amounts of hazardous materials, to be sited outside of areas subject to very strong ground shaking (such as over bay muds).

Geology-1b: Prepare or update an Earthquake Preparedness and Emergency Response Plan for the City to deal with the specific effects of seismic-induced ground shaking, liquefaction, and lurching.

Geology-1c: Require site-specific geotechnical investigations for every new development.

Impact Geology-1: Significance After Mitigation

Although the risk of seismically induced ground shaking would not be eliminated, implementation of the mitigation measures listed above would reduce the impact to a less-than-significant level.

Impact Geology-2: Development consistent with the proposed Land Use and Circulation Elements Update would involve grading that would disrupt, compact, and overcover existing soil. This could alter the capacity of native soils to absorb precipitation and runoff and increase their erosion potential. This would be considered a significant impact.

The native soils on some of the project parcels are poorly drained clays over alluvium. Most of the soils in the project area are well-drained loams and clays. Both loams and clays have moderate to high water-holding capacities that would be diminished by overcovering the soils with structures and increasing the amount and weight of overburden above them. This would increase the amount of runoff from these compacted soils. Additionally, disruption of the soils would increase their already high susceptibility to erosion, leading to further problems discussed below. All of the project parcels could be potentially affected by this impact. The indirect effects of this include runoff and erosion, which are discussed below in Impact Geology-3.

Impact Geology-2: Mitigation Measures Identified in Other *General Plan* Elements

Implementation of the Seismic Safety/Safety Element contained in the City's *General Plan* (described under Mitigation Measures for Impact Geology - 1) would help reduce the impact to a less-than-significant level.

Impact Geology-2: Additional Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on implementation of the following mitigation measures:

Geology-2a: Development of the project sites should minimize the amount of native soils compacted by construction vehicles and structures, as well as the amount of soil disturbed through grading and excavation. As much as possible, native soils should be left undisturbed and used for open space and landscaping purposes.

Geology-2b: Development of the project sites should also maximize the use of pervious materials, including fill, and incorporate proper drainage structures capable of handling anticipated increases in surface runoff.

Geology-2c: Minimize amount of grading when building on hill sides.

Impact Geology - 2: Significance After Mitigation

Implementation of the mitigation measures listed above would reduce the impact to a less-than-significant level.

Impact Geology - 3: Development consistent with the proposed Land Use and Circulation Elements Update would accelerate natural erosion of native soils and fill by wind and water. If uncontrolled, increased erosion could undermine structures built upon the study area parcels. Eroded materials could also increase sedimentation in nearby Refugio Creek and in San Pablo Bay. This would be considered a significant impact.

Construction activities taking place on soils with high erosion potential can lead to excessive siltation of nearby surface waters, degrading water quality and affecting aquatic habitat. This can have a significant impact on a natural community.

Given the combination of highly erosive soils (Tierra Loam, Los Osos Clay Loan, and Sehorn Clay) in many of the parcels described above, and the potentially unstable slopes in certain areas, new construction in many parts of the study area could result in excessive siltation of surface waters, such as Refugio Creek and San Pablo Bay. Eroded soil that is left unstabilized could be carried by surface runoff to topographic low areas such as streams. Turbid water conditions would then be created, and any water-dependent uses of the stream such as fishing or swimming would be affected. Moreover, soil particles have a large surface area which can adsorb contaminants such as pesticides, oil or grease, or other hazardous substances that could then be introduced into surface waters via runoff. All these effects could pose harm to human health as well as affecting aquatic habitat for other organisms.

The project parcels most likely to be affected by this impact include those with the steepest and most unstable slopes (Parcels 1, 3, 4, 6, 7, 10, C and I) and those with loam soils having moderate to high erosion potential (Parcels 1, 3-8, 12-14, A-E, and G-J).

In the City's grading ordinance provides for testing in areas where there are potential geologic hazards, and for City approval of grading plans. The grading ordinance also leads to periodic construction inspection of individual development proposals.

Impact Geology-3: Mitigation Measures Proposed as Part of the Project

None identified.

Impact Geology-3: Mitigation Measures Identified in Other *General Plan* Elements

Implementation of the following Seismic Safety/Safety Element measures contained in the City's *General Plan* would help reduce the impact to a less-than-significant level:

Policies C.2, C.3, C.5, C.6, C.12, C.13 and C.14, as described above.

Impact Geology - 3: Additional Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on the following implementation program:

Geology-3a: No grading should occur on slopes steeper than 30 percent, and cut slope angles no greater than 33 percent be maintained (Griggs and Gilchrist, 1977).

Geology-3b: The use of silt fencing, sediment trapping basins, runoff diversion devices, and hydroseeding of barren slopes can minimize or prevent this impact. It is recommended that applicants for construction permits within the City of Hercules submit an erosion control plan for the proposed development site, based on soil and underlying substrate conditions and using criteria obtained from the City's Grading Ordinance.

Grading in the City should occur with no increase in discharge of sediments to wetlands, Refugio Creek, or San Pablo Bay. Measures to be implemented by the developers should be identified in their erosion and sediment control plans, as required by the City's Grading Ordinance. Measures identified in the report should be incorporated as conditions of approval for the development.

Impact Geology - 3: Significance After Mitigation

Implementation of the mitigation measures listed above would reduce the impact to a less-than-significant level.

Impact Geology-4: Development consistent with the proposed Land Use and Circulation Elements Update could result in changes in topography and construction on steep slopes in some portions of the study area that would accelerate the development of landslides or mudslides. This would be a significant impact.

Most landslides occur on slopes greater than 15 percent, in areas where landsliding has previously taken place, and in areas underlain by landslide-prone geologic units. Areas with slopes greater than 15 percent and that show evidence of past landslide activity are shown in

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Figure IV.J.2 (small areas of steep slopes on parcels along highway or railroad embankments are not shown for Parcels 1, 3, 4, 6, 7, 10, 11). Bay muds are also susceptible to failure, even when nearly level. These unconsolidated, soft muds tend to flow laterally into cuts and are particularly susceptible to failure during earthquakes (Nilsen, et al., 1979).

Slope instabilities in areas of steep slopes and previous landslides could be aggravated by development such as changes in topography that increased relief or steepness of slopes, particularly artificially cut slopes. Slope instabilities could also be triggered by seismically induced ground shaking. Earthquake-induced landslides generally occur in areas already susceptible to landslides due to other factors. Earthquakes may trigger landslides that might not otherwise occur until a later time. As discussed above, landslides are relatively common in the project vicinity; ground shaking could reactivate existing slides and trigger new slides, particularly if the groundshaking occurred during a wet period.

The parcels, or portions thereof, that contain the steepest slopes (greater than 15 percent) and have the highest potential for landslides are Parcels 1, 3, 4, 6, 7, 9, 11, C, and J.

Impact Geology-4: Mitigation Measures Proposed as Part of the Project

Implementation of the Land Use Element Update Policies below, in addition to the existing Seismic Safety/Safety Element contained in the City's *General Plan*, would help reduce the impact to a less-than-significant level:

Policy 6A: Large scale residential development should include a mix of dwelling types, taking into account the land use designation and density range of the area, and recognizing constraints imposed by topography and feasibility.

Impact Geology-4: Mitigation Measures Identified in Other *General Plan* Elements

Implementation of the following Seismic Safety/Safety Element policies contained in the City's *General Plan* would help reduce the impact to a less-than-significant level:

Policies C.5, C.6, C.7, C.8, C.12, C.13 and C.14, described above.

Geology - 4: Additional Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on the following implementation measures:

Geology-4a: Develop and implement hillside drainage plans to reduce the risk of further movement by existing landslides. Site new structures away from steep hillsides and the toes of existing landslide surfaces, reducing the potential for damage from landslide movement or burial. Require potential developers to perform site-specific slope stability analyses, including field estimation of the soil properties significant to slope stability, for those parcels or portions thereof identified as having the steepest slopes or greatest potential for landslides.

In addition, the City should add the following policies to the proposed Land Use Element Update:

Geology-4b: Develop the study area parcels in such a way as to minimize the potential for creating new landslides or reactivating old ones.

Impact Geology-4: Significance After Mitigation

Implementation of the mitigation measures listed above would reduce the impact to a less-than-significant level.

Impact Geology-5: Development consistent with the proposed Land Use and Circulation Elements Update could expose people and structures to the hazard of differential settlement. This would be a significant impact.

The foundation properties of bay mud and artificial fill that underlie much of the valley floor are poor. The bay mud has low strength, deforms plastically, and is compressible. The artificial fill materials are not well compacted. These materials therefore have undesirable engineering properties. These materials can be subject to differential settlement that could damage overlying structures. Development in the study area could potentially expose people or structures to the hazard of differential settlement, resulting in vertical separation of portions of structures and damage to both structures and buried utility lines. Differential settlement would be a potential hazard for development over non-engineered fill, alluvium, and/or bay muds such as on Parcels 1, 2, 3, 9, 10, 11, 12, F, and G; and on sites containing transition zones between alluvium and bedrock, such as on Parcels 1, 3, 4, 6, 13, 14, E, H, and J.

Impact Geology-5: Mitigation Measures Proposed as Part of the Project

None identified.

Impact Geology-5: Mitigation Measures Identified in Other *General Plan* Elements

Implementation of the following Seismic Safety/Safety Element policies contained in the City's *General Plan* would help reduce the impact to a less-than-significant level:

Policies C.1, C.4, C.10 and C.11.

Impact Geology-5: Additional Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on the following mitigation measure:

Geology-5a: Place buildings and other structures on pile supports sunk and anchored to bedrock beneath fill, alluvium or muds.

Impact Geology-5: Significance After Mitigation

Implementation of the mitigation measures listed above would reduce the impact to a less-than-significant level.

Impact Geology-6: Development consistent with the proposed Land Use and Circulation Elements Update would result in construction on soils with high shrink-swell potential and corrosive potential, which could cause cracking of foundations and corrosion of concrete. This would be a significant impact.

In general, all the soils in the study area present limitations in terms of low strength, high shrink-swell potential, and high corrosivity. These materials therefore have undesirable engineering properties. Expansive soils would damage foundations unless properly mitigated. With the exception of Clear Lake Clay, soils in the study area have moderate to high erosion potential. The highly corrosive soils throughout the study area could damage utilities and foundations unless properly mitigated.

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All of the parcels in the study area, with the exception of Parcel 14, have soils with high shrink-swell potential; and all but Parcel 2 have soils with high erosive potential.

Impact Geology-6: Mitigation Measures Identified in Other *General Plan* Elements

Implementation of the following Seismic Safety/Safety Element measures contained in the City's *General Plan* would help reduce the impact to a less-than-significant level:

Policies C.1, C.4, C.9, C.11, described above.

Impact Geology-6: Additional Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on the following mitigation measures:

Geology-6a: Applicants for development of structures within the City of Hercules shall submit a report by a California certified engineering geologist documenting the geotechnical suitability of the site for the proposed development based on soil and underlying substrate conditions; and the measures required to ensure public safety and the protection of property.

Impact Geology - 6: Significance After Mitigation

Implementation of the mitigation measures listed above would reduce the impact to a less-than-significant level.

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K. AIR QUALITY

SETTING

Factors Influencing Air Quality

The primary factors that determine air quality are the locations of air pollutant sources and the amounts of pollutants emitted. Meteorological and topographical conditions, however, also are important. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants.

The San Francisco Bay Area climate is Mediterranean in character, with mild, rainy winter weather from November through March, and warm, dry weather from June through September. There is a high percentage of sunshine away from the immediate coast, particularly in summer. Movements of marine air, which in large part determine the temperature, humidity, wind, and precipitation throughout the year, depend upon the location and strength of the dominant Pacific high-pressure system and the coastal temperature gradient.

In summer, the Pacific high-pressure system typically remains near the coast of California, diverting storms to the north through the northern states and Canada. Subsidence of warm air, associated with the Pacific high, creates frequent summer atmospheric temperature inversions. Subsidence inversions may be several hundred to several thousand feet deep, effectively trapping pollutants in a small volume of air near the ground. In winter, the Pacific high-pressure system moves southward, allowing ocean-formed storms to move through the region. Stagnant atmospheric conditions can exist for several days between storms. The frequent storms and infrequent periods of sustained sunny weather are not conducive to smog formation. Radiational cooling during the evening, however, sometimes creates thin inversions and concentrates air pollutant emissions near the ground.

In general, northwesterly winds generated by high-pressure cells over the Pacific Ocean are drawn through the Golden Gate and forced into a more westerly orientation. Once through the Gate, this air mass is split and rechanneled by the East Bay hills, producing southwesterly winds at San Pablo and northwesterly winds at San Jose. The wind monitoring station closest to the City of Hercules is located in Rodeo. Wind data taken in Rodeo indicate that winds from the south-southwest occur more than 50 percent of the time (California Air Resources Board, 1984).

These data also indicate that the area is relatively well-ventilated with winds averaging approximately seven miles per hour on an annual basis (California Air Resources Board, 1984).

Air Quality Regulatory Context

Federal

Regulation of air quality is achieved through both federal and state ambient air quality standards and emissions limits for individual sources of air pollutants. The federal Clean Air Act (CAA) required the U.S. Environmental Protection Agency (EPA) to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), suspended particulate matter (PM₁₀), and lead (Pb). These pollutants are called "criteria" air pollutants because the standards satisfy criteria specified under the Clean Air Act. Table IV.K.1 shows the NAAQS as well as their California counterparts as discussed below.

Pursuant to the 1990 CAA Amendments, the EPA has classified Air Basins, or portions thereof, as either "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the NAAQS have been achieved. O₃ nonattainment areas are categorized as "extreme," "severe," "serious," "moderate," or "marginal." The CO and PM₁₀ nonattainment regions are divided into "serious" and "moderate" classifications. The City of Hercules is located within the San Francisco Bay Area Air Basin, which has been classified as attainment for NO₂, Pb, and SO₂ (California Air Resources Board, 1993a). Under the federal system, the San Francisco Bay Area Air Basin has been categorized as "moderate" for O₃ and CO. The Bay Area Air Quality Management District (BAAQMD) recently applied for attainment status for O₃, as the federal standard has been met for the past three years. A Maintenance Plan that would maintain the standard for the next ten years has been developed, and was submitted with the redesignation request. The CO standard has not been exceeded in the Bay Area for two years, and the BAAQMD will be applying for attainment status in 1994. The Bay Area is unclassified for PM₁₀, but it is expected that Contra Costa County will be classified as attainment in 1995 (Marshall, 1994).

Regulation of toxic air contaminants (TACs), termed Hazardous Air Pollutants (HAPs) under federal regulations, is achieved through federal and state controls on individual sources. Federal law defines HAPs as non-criteria air pollutants with short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects. The 1977 Clean Air Act Amendments required

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TABLE IV.K.1: STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	SAAQS/a/	NAAQS/b/
Ozone	1 hour	0.09 ppm/c/	0.12 ppm
Carbon Monoxide	1 hour	20 ppm	35 ppm
	8 hour	9.0 ppm	9 ppm
Nitrogen Dioxide	1 hour	0.25 ppm	NA
	Annual	NA	0.053 ppm
Sulfur Dioxide	1 hour	0.25 ppm	NA
	3 hour	NA	0.5 ppm
	24 hour	0.04 ppm	0.14 ppm
	Annual	NA	0.03 ppm
Respirable Particulate Matter	24 hour	50 $\mu\text{g}/\text{m}^3$ /c/	150 $\mu\text{g}/\text{m}^3$
	Annual	30 $\mu\text{g}/\text{m}^3$	50 $\mu\text{g}/\text{m}^3$
Sulfates	24 hour	25 $\mu\text{g}/\text{m}^3$	NA
Lead	30 day	1.5 $\mu\text{g}/\text{m}^3$	NA
	Calendar Quarter	NA	1.5 $\mu\text{g}/\text{m}^3$
Hydrogen Sulfide	1 hour	0.03 ppm	NA
Vinyl Chloride	24 hour	0.010 ppm	NA

/a/ SAAQS (i.e. California standards) for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, respirable particulate matter are values that are not to be exceeded. All other California standards shown are values not to be equaled or exceeded.

/b/ NAAQS (i.e. national standards), other than ozone and those based on annual averages, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

/c/ ppm = parts per million by volume; $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter.

NA: Not Applicable.

SOURCE: California Air Resources Board, *California Air Quality Data Summary*, 1992.

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the EPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to protect public health and welfare. NESHAPs were established for benzene, vinyl chloride, inorganic arsenic, beryllium, mercury, asbestos, radio nuclides, and coke oven gas. The establishment of NESHAPs failed to result in substantial reductions of the emissions of HAPs, however.

The 1990 Clean Air Act Amendments offer a comprehensive plan for achieving significant reductions in both mobile and stationary source emissions of HAPs. A total of 189 air pollutants have been designated HAPs because of their adverse human health effects. Title III of the 1990 Clean Air Act Amendments amends Section 112 of the Clean Air Act Amendments to replace the former program with an entirely new technology-based program. Under Title III, EPA must establish maximum achievable control technology emission standards for all new and existing "major" stationary sources. Stationary sources of HAPs are required to obtain an operating permit from the BAAQMD pursuant to Title V of the 1990 CAA Amendments.

State

The Air Resources Board (ARB), California's state air quality management agency, regulates mobile emissions sources, and oversees the activities of County Air Pollution Control Districts and regional Air Quality Management Districts. The ARB indirectly regulates local air quality by having established state ambient air quality standards and vehicle emission standards, by setting guidelines, by conducting research activities, and by planning and coordinating activities.

California has adopted ambient standards for the criteria air pollutants that are more stringent than the federal standards. The State Ambient Air Quality Standards (SAAQS) are shown in Table IV.K.1. The California Clean Air Act, passed in 1988, calls for the establishment of a program to secure air quality data for each Air Basin in the State, and to inventory and monitor air pollutants. Under the California Clean Air Act, patterned after the federal Act, areas have been designated as attainment or nonattainment in relation to the SAAQS (rather than the national standards). The nine-county Bay Area has been designated as "non-attainment" with respect to the state standards for O₃, PM₁₀, and as "transitional" for CO (California Air Resources Board, 1993a). O₃ and PM₁₀ are categorized as "severe" with respect to the state air quality standards (meaning that the ARB has determined that the region cannot attain the state air quality standards by December 31, 1994, or an attainment date cannot be identified (Marshall, 1994).

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California State law defines TACs as air pollutants having carcinogenic effects. Assembly Bill (AB) 1807 (the Tanner Bill, passed in 1983) established the State Air Toxics Program and the methods for designating certain air toxics as TACs. A total of 191 substances have been designated TACs under California law; they include the 189 (federal) HAPs adopted as TACs in accordance with AB 2728. The Air Toxics Hot Spots Information and Assessment Act of 1987 (AB2588) seeks to identify and evaluate risk from air toxics sources; AB 2588 does not regulate air toxic emissions. Under AB 2588, sources emitting more than 10 tons per year of any criteria air pollutant must estimate and report their toxic air emissions to the local Air Districts. The local Air Districts then prioritize facilities on the basis of emissions, and "high priority" facilities are required to submit a health-risk assessment and communicate the results to the affected public. Depending on the risk levels, emitting facilities are required to implement varying levels of risk reduction measures. The BAAQMD is responsible for implementing AB 2588 in the San Francisco Bay Area Air Basin.

Local

The BAAQMD is the regional agency empowered to regulate air pollutant emissions in the San Francisco Bay Area Air Basin. The BAAQMD regulates air quality through its permit authority over most types of stationary emission sources and through its planning and review activities. The BAAQMD operates a regional network of monitoring stations that provides information on ambient concentrations of air pollutants, including TACs. Emissions of criteria air pollutants are regulated through both emissions limitations and the SAAQS. Emissions of TACs are evaluated by the BAAQMD on a case-by-case basis under a policy-based new source review program called "Risk Screening/Risk Management Procedures."

The *Bay Area '91 Clean Air Plan ('91 CAP)* describes the Bay Area's current plans for meeting State clean air laws (Association of Bay Area Governments, et al., 1991). The goal of the '91 CAP is to improve air quality through the 1990s through tighter industry controls, cleaner cars and trucks, cleaner fuels, and increased commute alternatives. The '91 CAP encourages cities and counties to adopt measures in support of this goal. Identified measures include: developing rules to reduce vehicle trips to and from major residential developments, shopping centers, and other indirect sources; encouraging cities and counties to plan for high density development; and clustering development with mixed uses in the vicinity of mass transit stations. The '91 CAP discourages "urban sprawl," while strongly endorsing high-density mixed-use developments near transit centers that reduce the need for commuting by personal vehicles.

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The Toxic Air Contaminant Control Program has been initiated by the BAAQMD to reduce public exposure to TACs from sources under its jurisdiction by 50 percent by 1995. The District is currently working to control TAC impacts from local "hot spots" and from ambient background concentrations. The control strategy involves reviewing new sources to ensure compliance with required emission controls and limits, maintaining an inventory of existing sources to identify major TAC emissions, and developing measures to reduce TAC emissions. The BAAQMD publishes the results of the various control programs in an annual report, which provides information on the current TAC inventory, AB 2588 risk assessments, TAC monitoring programs, and TAC control measures and plans.

BAAQMD Regulation 7 places general limitations on odorous substances and specific emission limitations on certain odorous compounds (BAAQMD, 1990). This regulation applies when and if the BAAQMD receives validated odor complaints (about a specific facility) from 10 or more complainants in a 90-day period.

Existing Air Quality

Criteria Air Pollutants

The BAAQMD's regional air quality monitoring network provides information on average concentrations of criteria air pollutants. Hercules is located between two air quality monitoring stations: BAAQMD's Richmond station, approximately six miles southwest of Hercules, and BAAQMD's Vallejo station, approximately eight miles north of Hercules. The data collected would be expected to be fairly representative of the air quality in Hercules. Air pollutant concentrations are compared with the SAAQS, which are more stringent than the corresponding NAAQS. Tables IV.K.2 and IV.K.3 are five-year summaries of air pollutant concentrations in Richmond and Vallejo, respectively.

Currently, most of the 24 parcels are undeveloped and emit negligible amounts of PM₁₀ from sources such as windblown dust and hydrocarbons (HCs) from biogenic sources. Portions or all of Parcels 6, 8, B, C, D, & I are developed and have stationary sources that include boilers, solvent use, and entrained road dust. These sources emit HCs, nitrogen oxides (NO_x), and PM₁₀. Mobile sources of air pollutants are also associated with current development on these parcels.

TABLE IV.K.2 RICHMOND AIR POLLUTANT SUMMARY, 1989-1993

Pollutant	Std./b/	Monitoring Data by Year/a/				
		1989	1990	1991	1992	1993
<u>Ozone (O₃)</u>						
Highest 1-hr. average, ppm/c/	0.09	<u>0.10</u>	0.06	0.05	0.08	<u>0.12</u>
Number of violations		1	0	0	0	2
<u>Carbon Monoxide (CO)</u>						
Highest 1-hr. average, ppm	20.0	9.0	7.0	7.0	5.0	N/A
Number of violations		0	0	0	0	N/A
Highest 8-hr. average, ppm	9.0	4.1	4.0	4.5	4.1	3.4
Number of violations		0	0	0	0	0
<u>Nitrogen Dioxide (NO₂)</u>						
Highest 1-hr. average, ppm	0.25	0.11	0.08	0.08	0.08	0.08
Number of violations		0	0	0	0	0
<u>Sulfur Dioxide (SO₂)</u>						
Highest 1-hr. average, ppm	0.25	0.04	0.07	0.05	0.03	N/A
Number of violations		0	0	0	0	N/A
<u>Particulate Matter (PM₁₀)</u>						
Highest 24 hr. average µg/m ³	50	<u>115</u>	<u>109</u>	<u>97</u>	<u>55</u>	N/A
Number of violations/d/		5	5	9	3	3
Annual geometric mean, µg/m ³	30	26.5	23.0	24.4	23.4	22.5
<u>Lead (Pb)</u>						
Highest monthly average, µg/m ³	1.5	0.14	0.16	0.29	0.03	N/A
Number of violations		0	0	0	0	0

/a/ All data are from the Richmond 13th Street monitoring station.

/b/ State standard, not to be exceeded, except for Pb standard, not to be equaled or exceeded.

/c/ ppm = parts per million; $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter.

/d/ Samples typically taken every six days.

Note: Underlined values are in excess of applicable standard. N/A = Not Available.

SOURCE: California Air Resources Board, *Air Quality Data Summaries*, 1989-1993; Bay Area Air Quality Management District, *Air Currents*, April 1994.

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TABLE IV.K.3: VALLEJO AIR POLLUTANT SUMMARY, 1989-1993

Pollutant	Std./b/	Monitoring Data by Year/a/				
		1989	1990	1991	1992	1993
<u>Ozone (O₃)</u>						
Highest 1-hr. average, ppm/c/	0.09	<u>0.12</u>	<u>0.11</u>	<u>0.11</u>	<u>0.10</u>	<u>0.11</u>
Number of violations		3	4	2	1	3
<u>Carbon Monoxide (CO)</u>						
Highest 1-hr. average, ppm	20.0	13.0	12.0	13.0	11.0	N/A
Number of violations		0	0	0	0	0
Highest 8-hr. average, ppm	9.0	<u>11.5</u>	9.0	<u>9.6</u>	6.6	7.9
Number of violations		2	0	1	0	0
<u>Nitrogen Dioxide (NO₂)</u>						
Highest 1-hr. average, ppm	0.25	0.13	0.08	0.09	0.07	0.07
<u>Sulfur Dioxide (SO₂)</u>						
Highest 1-hr. average, ppm	0.25	0.03	0.04	0.02	0.03	N/A
Highest 24-hr. average, ppm	0.04	0.01	0.01	0.01	0.02	0.01
Number of violations		0	0	0	0	0
<u>Lead (Pb)</u>						
Highest monthly average, µg/m ³	1.5	0.11	0.09	0.07	0.02	N/A
Number of violations		0	0	0	0	N/A

/a/ All data are from the Tuolumne Street monitoring station in Vallejo. PM₁₀ is not measured at the Vallejo station.

/b/ State standard, not to be exceeded, except for Pb standard, not to be equaled or exceeded.

/c/ ppm = parts per million; µg/m³ = micrograms per cubic meter.

Note: Underlined values are in excess of applicable standard. N/A = Not available.

SOURCE: California Air Resources Board, *Air Quality Data Summaries*, 1989-1992; Bay Area Air Quality Management District, *Air Currents*, April 1994.

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Major sources of air pollutants in Hercules and the immediate vicinity are the Pacific Refinery in Hercules, Unocal Refinery in Rodeo, and motor vehicles on SR 4 and I-80 freeways and local streets. Minor sources of air pollutants are the sewage treatment plant, and commercial and residential development.

The six criteria air pollutants are described below.

Ozone (O₃). The state O₃ standard is regularly violated in parts of the Bay area and, therefore, the Air Basin is non-attainment for O₃. O₃ is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving HC and NO_x. Significant O₃ production generally requires about three hours in a stable atmosphere with strong sunlight. O₃ is a regional air pollutant because its precursors are transported and diffused by wind concurrently with O₃ production. Motor vehicles are the major source of O₃ precursors in the Bay Area.

O₃ causes eye and respiratory irritation, reduces resistance to lung infection, and may aggravate pulmonary conditions in persons with lung disease. O₃ also is damaging to vegetation and untreated rubber. As shown in Tables IV.K.2 and IV.K.3, the state O₃ standard is exceeded on occasion in both Richmond and Vallejo.

Carbon Monoxide (CO). CO is an odorless, invisible gas usually formed as the result of incomplete combustion of organic substances. About 70 percent of the CO emitted in the Bay Area comes from motor vehicles (BAAQMD, 1993a). Ambient CO concentrations normally correspond closely to the spatial and temporal distributions of vehicular traffic. CO concentrations also are influenced by wind speed and atmospheric mixing. Under inversion conditions, CO concentrations may be distributed more uniformly over an area out to some distance from vehicular sources. High levels of CO can impair the transport of oxygen in the bloodstream, thereby aggravating cardiovascular disease and causing fatigue, headaches, and dizziness. The state CO standard has been violated in Vallejo several times over the past five years, but not since 1991. In 1992, oxygenated gasoline was introduced into the Bay Area over the winter months to reduce CO emissions from motor vehicles during the season when violations of CO standards typically occur. The BAAQMD expects CO emissions to decrease through 2010 (BAAQMD, 1993a).

Respirable Particulate Matter (PM₁₀). PM₁₀ consists of particulates 10 microns or less in diameter, which can be inhaled and cause adverse health effects. Particulates in the atmosphere

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result from many kinds of dust- and fume-producing industrial and agricultural operations, combustion, and atmospheric photochemical reactions. Demolition, construction, and vehicular traffic are major sources of particulates in urban areas. Natural sources of particulates include wind erosion from exposed surfaces. Particulate concentrations near residential sources generally are higher during the winter, when more fireplaces are in use and meteorological conditions prevent the dispersion of directly emitted contaminants. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates also can damage materials and reduce visibility. The state PM_{10} standard is occasionally violated in the vicinity of Hercules, based on measured concentrations in Richmond. The BAAQMD predicts that particulate concentrations will increase steadily through year 2010.

Nitrogen Dioxide (NO_2). NO_2 is the "whiskey brown" colored gas readily visible during periods of heavy air pollution. The major sources of NO_2 are vehicular, residential, and industrial combustion. The standards for NO_2 are being met in the Bay Area, and the BAAQMD does not expect these standards to be exceeded in the future. Nitrogen oxide emissions are expected to decrease slightly until 1996, and then increase very slightly until year 2010 (BAAQMD, 1993a).

Sulfur Dioxide (SO_2). The major source of SO_2 in the Air Basin is combustion of high-sulfur fuels. Ambient standards for SO_2 are being met throughout the Bay Area, and the BAAQMD does not expect these standards to be exceeded in the future. The BAAQMD expects SO_2 emissions to increase slightly until year 2010.

Lead (Pb). Gasoline-powered automobile engines used to be the major source of airborne Pb in urban areas, but are no longer the major source since leaded fuels have been phased out of the gasoline market. Pb can cause hematological (blood-related) effects, such as anemia (iron-deficient blood) and inhibition of enzymes involved in blood synthesis. Ambient levels in the Bay Area are well below the ambient standard and are expected to continue to decline.

Odorous Emissions

The Hercules Sewage Treatment Facility, located between Parcels 1, 3, 4, and C, is an existing source of odors in the City. Sewage sludge processing often generates hydrogen sulfide, methyl mercaptan, sulfur dioxide, and dimethyl disulfide gases. Fatty acids are a prominent source of

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odors in sewage sludge. The BAAQMD has not received any complaints linked to odors from the Hercules Wastewater Treatment Facility (Walker, 1994).

Pacific Refining Company, located adjacent to Parcels 6 and 7 in the northern portion of the City, is also an odor source. Rodeo residents have complained repeatedly (420 unconfirmed complaints between March 1990 and July 1992) to the BAAQMD about odors from the Pacific Refining Company. Odorous substances released during the refinery process consist of hydrogen sulfide and sulfur dioxide gases. As a result of the complaints and orders issued by the BAAQMD, Pacific Refining Company has implemented a variety of plant modifications and maintenance measures. Some Rodeo residents indicate that the refinery continues to emit odors, and that the decrease in complaints is actually due to frustration with the BAAQMD's response to their complaints (Woodward-Clyde Consultants, 1993).

Existing TAC Sources

The major source of TACs contributing to ambient risk in the Bay Area is motor vehicles (45 percent of the risk associated with all sources); the chemicals that contribute most to the risk are benzene (35 percent) and 1,3 Butadiene (18 percent) (BAAQMD, 1992). The BAAQMD's *Toxic Air Contaminant Control Program, Annual Report 1992* lists the major industrial sources of TACs in the City of Hercules. The report does not include mobile sources of TACs. A summary of major TAC point sources in Hercules along with the parcels closest to each source is shown in Table IV.K.4.

Pacific Refinery Company recently proposed to modify its refinery facility through a fuels modification process which would increase the amount of airborne TACs. A health-risk assessment prepared for the overall existing facility calculated an exposure level of 37 in one million (37×10^{-6}) at the maximum exposed individual (MEI) off the site. A screening-level health risk assessment for the proposed expansion showed an incremental increase of less than one in a million, so that the theoretical maximum cancer risk from the modified refinery would be 38 in one million (38×10^{-6}) (Woodward-Clyde Consultants, 1993). Worst-case meteorological conditions and standard models were used to simplify the screening-level health risk assessment, which is generally considered to present an upper bound to the level of screening level health risk posed by a project. The screening-level health risk assessment result determines whether further analysis is required. Under BAAQMD policy, if the results of the health risk assessment indicate a project cancer risk of less than one in one million (1×10^{-6}),

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TABLE IV.K.4: MAJOR POINT SOURCES OF AIR TOXICS IN HERCULES AND VICINITY, 1991

<u>Plant Name</u>	<u>Pollutant Emissions (lb/year)</u>	<u>Parcels Nearest Source</u>
Hercules Cleaners (1581 Sycamore Avenue)	1,200 lb/yr of perchloroethylene	8, F, & H
Hercules Wastewater Treatment Facility (555 Railroad Avenue)	30 lb/yr of chloroform	1, 3, 4, & C
Pacific Refining Company (4901 San Pablo Avenue)	3,000 lb/yr of benzene 12,000 lb/yr of toluene 7,400 lb/yr of xylene	14, 9, & J
Willow Cleaners (844 Willow Avenue)	1,200 lb/yr of perchloroethylene	7 & I
Pinole-Hercules Wastewater Treatment (Foot of Tenant Ave, Rodeo)	86 lb/yr of chloroform 200 lb/yr of methylene chloride 230 lb/yr of trichloroethane	6, 7, & I
Union Chemicals (2101 Franklin Canyon Road, Rodeo)	0.4 lb/yr of chromium 1,200 lb/yr of hydrochloric acid 180 lb/yr of mercury 9 lb/yr of nickel 220 lb/yr of zinc	6, 7, & I
Unocal Corp (San Pablo Avenue, Rodeo)	2 lb/yr of arsenic 12,000 lb/yr of benzene 8 lb/yr of cadmium 2 lb/yr of chromium 1,700 lb/yr of formaldehyde 250 lb/yr of hydrogen sulfide 81 lb/yr of mercury 250 lb/yr of PAHs 26,000 lb/yr of phenol 28,000 lb/yr of toluene 23,000 lb/yr of xylene	6, 7, & I

SOURCE: Bay Area Air Quality Management District, *Toxic Air Contaminant Control Program, Annual Report*, 1992; Environmental Science Associates.

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and no non-cancer toxic effects would be expected (determined by comparison to non-cancer effect criteria), then under the BAAQMD Public Risk Management policy, no further action is required. The Pacific Refinery modification falls into this category.

Sensitive Receptors

Land uses such as schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because infants, the elderly, and people with health afflictions, especially respiratory ailments, are more susceptible to respiratory infections and other air-quality-related health problems than the general public. Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present.

Industrial and commercial districts are less sensitive to poor air quality because exposure periods are shorter and workers in these districts are, in general, the healthier segment of the public. Recreational land uses are moderately sensitive to air pollution. Although exposure periods are generally short in such places, vigorous exercise associated with recreation places a high demand on the human respiratory functions, which air pollution can impair.

For the Land Use and Circulation Elements Update, sensitive receptors include schools, old-age and retirement homes, convalescent homes, residences, and other similar air pollution-sensitive land uses or activities that could be adversely affected by air pollutants generated by future City-wide growth and development. Section IV.A, Land Use, Plans and Policies, shows existing and proposed land uses in the City.

IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the CEQA *Guidelines* states that a project would normally have a significant air quality impact if it would violate air quality standards, contribute substantially to existing or projected air quality violations, or expose sensitive receptors to substantial concentrations of air pollutants. The BAAQMD recommends five significance criteria in its *Guidelines for Assessing Impacts of Projects and Plans* (BAAQMD, 1985). The BAAQMD's criteria expand on the

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criteria contained in the *CEQA Guidelines*. The following BAAQMD significance criteria are used to evaluate the proposed Land Use and Circulation Elements Update:

- Any project or plan, when added to background levels, that would generate carbon monoxide concentrations above the state or national carbon monoxide standards would be of "significant effect" by definition.
- The level of emissions from a total of direct and indirect sources would be considered significant if they exceed 150 lb/day for hydrocarbons, nitrogen oxides, sulfur dioxides, and particulates, and 550 lb/day for carbon monoxide.
- Any project or plan should also be considered of significant effect if emissions of any criteria contaminant from combined direct and indirect sources reaches or exceeds one percent of County emissions of the contaminant.
- If the population or employment projections, as compiled by the Association of Bay Area Governments, would be exceeded because of the project or plan, there would be a finding of a "lack of consistency or conformity with the Bay Area Air Quality Plan." That is, in itself, equivalent to a finding of significant adverse effect.

Methodology

Total vehicle-miles traveled (VMT) were estimated using trip generation rates assigned to the West County Traffic Model by the traffic consultant, DKS Associates. The model ascribes trip generation rates and trip lengths to various land uses. Based on the trip generation rates, buildout of the 24 parcels by 2010 would result in an increase of 844,000 daily vehicle miles of travel (VMT) compared to existing conditions. EMFAC7F emission factors for the year 2010 were then used to estimate criteria air pollutant emissions from mobile sources, at an average speed of 30 miles per hour (BAAQMD, 1993c).

Stationary source emissions (combustion of natural gas for heating, etc.) from 3,816 multi-family residential units and 5,186,327 square feet of commercial and industrial space were estimated using gas consumption factors developed by the South Coast Air Quality Management District (SCAQMD, 1992). The gas consumption factors were applied to the U.S. EPA's AP-42 emission factors for natural gas combustion (U.S. EPA, 1993). Stationary and mobile source emissions were added and total emissions were compared to County-wide emissions projections for the year 2010 to determine the project's relative contribution to regional emissions.

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Roadside CO concentrations were modeled using the Caltrans computer model CALINE4. This Gaussian dispersion model calculates one-hour concentrations on the basis of peak-hour traffic volumes, roadway configurations, and worst-case meteorological assumptions. EMFAC7F emission factors were used for this modeling effort. Program-generated concentrations were added to 2010 projected background concentrations, which were obtained from the BAAQMD's CO isopleth map for the region. Eight-hour CO concentrations were estimated from the one-hour concentration by using a persistence factor of 0.7. The resulting ambient CO concentrations were then compared to the one-hour and eight-hour state CO standards to determine if there would be any air quality standard violations.

Project-generated population and employment estimates were compared with ABAG's regional projections to determine consistency and conformance with the Air Quality Plan.

Impacts

Impact Air-1: Fugitive dust generated by construction and demolition activities under the Land Use and Circulation Elements Update would add to ambient PM₁₀ levels. This would be a significant impact.

Construction of individual projects consistent with the proposed Land Use and Circulation Elements Update would generate substantial amounts of dust. Dust emissions would vary day to day, depending on the level and type of activity, silt content of the soil, and the prevailing weather. A large portion of the total construction dust emissions from a particular development would result from equipment traffic over temporary roads at the construction site. Other sources of fugitive dust during construction would include excavation, earth movement, grading, and wind erosion from exposed surfaces.

Demolition activities presently generate a substantial amount of PM₁₀ in the Bay Area. Demolition of existing structures would be required for development on Parcels 1, B, D, and E. The intensity of demolition dust depends on the level of demolition activity, structural material, and prevailing weather.

Construction and demolition dust emissions were not quantified for this report, as the specifications, timing and specific locations of individual development projects are not known. Because the region is already non-attainment for PM₁₀, with regular violations, the State 24-hour PM₁₀ standard would likely be violated at times in the vicinity during construction, and

visibility could be temporarily affected. Construction of individual projects could also emit more than 150 pounds per day of PM₁₀. The potential to expose sensitive receptors to substantial quantities of dust could also be a significant impact, if unmitigated.

Impact Air-1: Mitigation Measures Proposed as Part of the Project

None identified.

Impact Air-1: Mitigation Measures identified in other *General Plan* Elements

The following mitigation measures are policies or programs in the *General Plan* Economic Development Element:

Policy 3: The City will assist in the improvement of air quality as one part of "quality of life."

Program 3: The City will monitor air quality programs at the regional and state level to help insure that a balance is maintained between air quality and other quality of life issues, and will review new development to ensure that adopted air quality standards are not violated.

Impact Air-1: Additional Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on implementation of the following dust abatement program:

Air-1a: The elements of the dust abatement program include the following dust control measures:

- Sprinkle all construction areas with water (recycled when possible) at least twice a day, during excavation and other ground-preparing operations, to reduce fugitive dust emissions. Wetting could reduce particulate (dust) emissions by up to 50 percent.
- Cover stockpiles of sand, soil, and similar materials, or surround them with windbreaks. This measure would substantially reduce wind erosion of stockpiled materials during demolition, and construction, reducing the potential of the project to contribute to excessive suspended particulate (dust) concentrations when the wind exceeded 10 miles per hour.
- Cover trucks hauling dirt and debris to reduce spillage onto paved surfaces.

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- Post signs that limit vehicle speeds on unpaved roads and over disturbed soils to 10 miles per hour during construction.
- Use canvas drapes to enclose building floors during the application of mineral-based fiber insulation to structural steel frames.
- Sweep up dirt and debris spilled onto paved surfaces immediately to reduce resuspension of particulate matter through vehicle movement over those surfaces.
- Require the construction contractor to designate a person or persons to oversee the implementation of a comprehensive dust control program and to increase watering, as necessary.

Impact Air-1: Significance After Mitigation

The mitigation measures identified above would reduce PM₁₀ emissions during construction and demolition of individual projects, and would mitigate the impact to a less-than-significant level.

Impact Air-2: Exhaust emissions from construction equipment would increase criteria air pollutant emissions during the construction periods for individual projects under the proposed Land Use and Circulation Elements Update. This would be a significant impact.

Motor vehicles emit exhaust fumes that adversely affect the air quality of a region. Exhaust emissions during construction of individual development projects would result from construction-related vehicular traffic, such as construction equipment and machinery operations, material haul operations, and automobiles transporting workers to and from each site. Exhaust would include CO, NO_x, and O₃ precursors (HC and NO_x). Most construction equipment is diesel-powered, which generates substantial amounts of NO_x. Exhaust emissions from construction vehicles would vary depending on the type of equipment, duration of use and the number of transport trips for people and material.

Because the specific locations, timing, and specifications of individual projects to be developed under the proposed Land Use Element Update are not known, construction-related emissions were not quantified. Due to the relatively large amount of construction that would occur, exhaust-generated criteria air pollutant emissions (NO_x, in particular) could occasionally exceed the BAAQMD's 150 pounds per day threshold and be significant.

Impact Air-2: Mitigation Measures Proposed as Part of the Project

None identified.

Impact Air-2: Mitigation Measures identified in other *General Plan* Elements

None identified.

Impact Air-2: Additional Mitigation Measures identified in this EIR

The City shall condition approval of individual projects upon implementation of the following mitigation measures:

Air-2a: Require construction contractors to maintain and operate construction equipment so as to minimize exhaust emissions. All internal combustion engines should be kept well-tuned with regular and periodic inspection and maintenance checks to minimize exhaust emissions. During construction, trucks and equipment should be running only when necessary.

Air-2b: Require that construction of large projects be timed to avoid significant periods of overlap.

Impact Air-2: Significance After Mitigation

Proper maintenance of construction equipment would reduce construction emissions to a less-than-significant level.

Impact Air-3: Projected development under the proposed Land Use and Circulation Elements Update would generate criteria air pollutants that would increase total air pollutant emissions in the region. This would be a significant impact.

Long-term air quality would be adversely affected by air pollutant emissions from both mobile and stationary sources. Criteria air pollutants would be attributable to residential and commercial stationary source emissions, including combustion of natural gas for heating. Table IV.K.5 shows the estimated increase in mobile and stationary source emissions at buildout of the Land Use Element Update.

The emissions estimate in Table IV.K.5 is the net increase between current emissions and buildout emissions.

Stationary and mobile source emissions are added together in Table IV.K.5 to determine the total air pollution contribution of the Land Use and Circulation Elements, and are compared to County-wide emissions in 2010. As shown in Table IV.K.5, mobile sources are the largest

TABLE IV.K.5: ESTIMATED INCREASE IN DAILY EMISSIONS OF CRITERIA AIR POLLUTANTS DUE TO PROJECT, 2010

Air Pollutant	Emissions (pounds/day)			Contra Costa County/c/	Increase in Emissions as a Percent of County Emissions (%)
	Mobile Sources/a/	Hercules Stationary Sources/b/	Total		
CO	6,622	28	6,650	627,692	1.06
NO _x	1,391	37	1,428	284,250	0.50
SO _x	129	1	130	110,000	0.12
HC	575	24	599	158,709	0.38
PM ₁₀	2,356	12	2,368	187,787	1.26

- /a/ Based on full buildout, and using EMFAC7F emission factors for the Bay Area for the year 2010 and an estimated 844,000 daily increase in VMT. EMFAC7F emission factors include average speed assumption for Bay Area composite motor vehicle fleet mix.
- /b/ Based on US EPA, 1993, *Compilation of Air Pollution Emission Factors (AP-42)* and SCAQMD, 1992, *CEQA Air Quality Handbook*. Includes stationary source emissions for combustion of natural gas only.
- /c/ Based on projected emissions for Contra Costa County, California Air Resources Board, *Emission Inventory 1990, 1993b* and BAAQMD, 1993b, *Emission Inventory Summary Report, Base Year: 1990*.

SOURCE: Environmental Science Associates, Inc.

contributor to projected emissions of CO, NO_x, SO_x, HCs and PM₁₀. Each air pollutant, with the exception of SO_x, would exceed the BAAQMD's 150 pounds/day threshold. PM₁₀ and CO emissions would exceed the BAAQMD significance thresholds and be greater than one percent of total County emissions. The CO emissions would be significant, but unlikely to result in local violations of the CO standard based on the CALINE4 analysis. The NO_x and HC emissions could in the future affect O₃ "attainment," expected by the BAAQMD in 1994. Meteorological conditions and cumulative growth will also affect the amount of regional O₃. Therefore, this would be considered a significant impact.

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The BAAQMD adopted Trip Reduction Ordinance (TRO) Regulation 13, Rule 1, in 1992, with a purpose of improving air quality by reducing the number vehicle trips to work sites. In Contra Costa County, the Average Vehicle Ridership (the number of employees per vehicle) must be increased to 1.35 by 1999. New commercial/retail proposals involving 100 or more employees would be required to participate in Regulation 13, Rule 1.

Impact Air-3: Mitigation Measures Proposed as Part of Project

The following policies or programs are from the proposed Land Use Element Update:

Policy 2B: Develop non-residential Land Use Categories which reduce the need for residents to leave the community by providing a variety of shopping and service opportunities.

Policy 3A: Develop transportation facilities to provide access to the region, particularly public transit systems (buses, ride sharing, and rail transit, as well as potential over water transit).

Program 3A.1: Provide assistance and support a regional rail transit system and seek funding for a train station in Hercules.

Program 3A.2: Work with BART to develop both short-term and long-term transit facility uses on the BART site in Hercules.

Policy 11A: Cooperate with appropriate jurisdictions and/or agencies in preparation of State Mandated Regional Plans (e.g., Congestion Management and Source Reduction and Recycling Element).

The following objectives, policies and programs are from the proposed Circulation Element Update:

Objective 2.h: Promote public transit service within the City and area.

Policy 2.e: The City should actively participate in cooperative efforts to provide effective public transit to the City and adjacent communities, including promoting commuter rail and a train station in the City to intercept through travelers on I-80.

Implementation Program 6: Participation in local and regional Transportation System Management (TSM) programs, such as the City's adopted Transportation Demand Management (TDM) Program, which was developed by the West Contra Costa County Transportation Advisory Committee (WCCTAC) and includes guidelines for trip reduction measures.

Implementation Program 10: Support area-wide cooperative efforts to expand public transit service to the City and surrounding areas.

Implementation Program 14: Continue programs that include trip reduction goals for private and public development; actions to reduce peak hour private vehicle trips (e.g. flex-time, car pools, support of transit); traffic routing controls; further review of alternative funding sources; an implementing and enforcement ordinance; and alternative financing methods for fee payment which do not put the City at risk but ease the developer impact/burden.

Impact Air-3: Mitigation Measures identified in other *General Plan* Elements:

The following mitigation measure is from the *General Plan* Economic Development Element:

Implementation Program 3: The City will assist in the improvement of air quality as one part of "quality of life." The City will monitor air quality programs at the regional and state level to help insure that a balance is maintained between air quality and other quality of life issues, and will review new development to ensure that adopted air quality standards are not violated.

Impact Air-3: Mitigation Measures Identified in this EIR

The City should consider a long-term air quality planning effort as discussed below:

Air-3a: The City could prepare an Air Quality Element of its *General Plan*.

The BAAQMD recommends that an Air Quality Element be developed for cities subject to rapid growth and change. An Air Quality Element can be used in the preparation of subsequent specific area plans, EIRs, and for the achievement of ambient air quality standards. The BAAQMD's philosophy is that air quality concerns should be an early input into the planning process. The purpose of the Air Quality Element would be to:

- contain the air quality goals of the City, based on background conditions including local and regional meteorological influences on air quality, emissions inventory data, and existing City sources of criteria, odorous and toxic air pollutants.
- provide City-approved mitigation measures for mobile sources, stationary sources, and a commitment to implementation of these measures in specific projects that are subsequently proposed.
- serve as a land-use planning tool by identifying sensitive receptors in the City.
- encourage mixed-use development that could minimize vehicle use.

Air-3b: Coordinate with the BAAQMD in planning future growth, implementing regional transportation plans and trip reduction measures, and controlling stationary source emissions. Incorporate the recommendations of the BAAQMD in General Plan policies and directing for regional growth and development.

Impact Air-3: Significance After Mitigation

The mitigation measures discussed above do not include specific performance standards on trip reduction and public transit ridership goals, and it would not possible to predict the reduction in vehicle-miles traveled and the air pollutant emission reductions that would be realized by implementing the mitigation measures. Furthermore, the involved agencies (City of Hercules, BART, WestCAT, BAAQMD) that would implement these measures have limited resources and jurisdiction. Therefore, it is possible that air quality impacts would remain significant after mitigation.

Impact Air-4: CO generated by vehicular traffic generated as a result of the Land Use and Circulation Elements Update would increase roadside CO concentrations along heavily traveled roadways and at congested intersections. This would not be a significant impact.

Roadside CO concentrations were modeled using the CALINE4 dispersion model developed by the California Department of Transportation, on the basis of peak-hour traffic conditions under worse-case meteorological conditions. Roadside CO concentrations at San Pablo Avenue/Sycamore Avenue and San Pablo Avenue/John Muir Parkway (SR 4) under the existing and proposed Land Use and Circulation Elements are shown in Table IV.K.6. Because of the projected deterioration in their levels of service and high traffic volume, these intersections are expected to have the maximum project-generated impacts.

As shown in Table IV.K.6, neither the one-hour or eight-hour standard would be violated in 2010 at the San Pablo Avenue/Sycamore Avenue or San Pablo Avenue/John Muir Parkway intersections. A comparison of the existing and proposed Land Use and Circulation Elements shows that the proposed Land Use and Circulation Elements would result in slightly higher CO concentrations at the San Pablo Avenue/Sycamore Avenue intersection. CO emissions for individual vehicles are expected to decline in future years due to federal and state regulations requiring improved engine efficiencies and cleaner-burning reformulated gasolines. Because the CO standard would not be violated, the proposed Land Use and Circulation Elements would not have a significant effect on ambient CO concentrations.

Impact Air-4: Mitigation Measures Proposed as Part of Project

The following policies or programs are from the proposed Land Use Element Update:

Policies 2B, 3A, and 11A and Programs 3A.1 and 3A.2 discussed in mitigation for Impact Air-3.

TABLE IV.K.6: PROJECTED CO EMISSIONS AT SELECTED INTERSECTIONS

<u>Road Segment</u>	<u>Averaging Time (hr)</u>	<u>Concentrations (ppm) /a,b,c/</u>	
		<u>Existing General Plan, 2010</u>	<u>Proposed General Plan, 2010</u>
1. San Pablo Avenue/ Sycamore Avenue	1	2.7	4.0
	8	2.4	3.3
2. San Pablo Avenue/ John Muir Parkway (SR 4)	1	3.9	3.9
	8	3.2	3.2

/a/ Projected using CALINE4 dispersion model, EMFAC7F composite air pollutant emission factors for motor vehicles, worst-case meteorological assumptions, and traffic data from DKS Associates, Traffic Consultants. Receptors were placed at a distance of 15 feet from the road.

/b/ One-hour concentrations include a background concentration of 1.5 ppm in 2010. Eight-hour concentrations are assumed to be 70 percent of the local contribution to the one hour concentrations, plus a background concentration of 1.5 ppm in 2010.

/c/ Background air emissions from vehicles on I-80 were included in model analysis.

Note: The state one-hour CO standard is 20 ppm and the federal standard is 35 ppm. The state and federal eight-hour CO standards are 9.0 ppm. No violations are expected at either intersection.

SOURCE: Environmental Science Associates, Inc.

The following objectives, policies and programs are from the proposed Circulation Element Update:

Objective 2.h, Policy 2.e, and Implementation Programs 6, 10, and 14 discussed in mitigation for Impact Air-3.

Impact Air-4: Mitigation Measures identified in other *General Plan* Elements:

None identified.

Impact Air-4: Mitigation Measures Identified in this EIR

Mitigation Measures 3a and 3b discussed in mitigation for Impact Air-3.

Impact Air-4: Significance After Mitigation

No mitigation is required, and the impact would remain less-than-significant.

Impact Air-5: The Land Use Element Update would result in increases in population and employment beyond ABAG projections and, therefore, would not be consistent or in conformance with the 1991 Clean Air Plan. This would be a significant impact.

BAAQMD Guidelines state that if a project or plan would cause population or employment in the affected subregion to exceed population or employment forecasts used to develop regional air quality plans, that project or plan would be inconsistent with those plans, and the inconsistency would be considered a significant adverse air quality effect (BAAQMD, 1985). The applicable population and employment forecasts are those developed by the Association of Bay Area Governments (ABAG).

The '91 CAP, mandated under state law, contains strategies for improving air quality in the San Francisco Bay Area Air Basin that were developed on the basis of population and employment forecasts contained in *Projections '90* (ABAG, 1989). The recently submitted federal O₃ plan for the Air Basin was based on population and employment forecasts contained in ABAG's *Projections '92* (ABAG, 1992). Population and employment forecasts in *Projections '92* are compared to buildout under the proposed Land Use and Circulation Elements and shown in Table IV.K.7.

Under the proposed Land Use and Circulation Elements Update, population would exceed ABAG projections for 2010 by approximately 31 percent. Employment could exceed ABAG projections by approximately 150 percent. By generating higher population and employment than originally planned for, buildout under the Land Use Element Update could render some of BAAQMD's projected attainment schedules invalid, particularly for mobile source emissions. The proposed Land Use Element would reduce the growth in industrial uses, compared to the existing land Use Element. Therefore, stationary source emissions would be expected to be relatively less than projected by BAAQMD.

TABLE IV.K.7: POPULATION AND EMPLOYMENT PROJECTIONS FOR HERCULES
COMPARED TO ABAG PROJECTIONS

Year	Population		Employment	
	Land Use Element /a/	Projections '92/b/	Land Use Element /a/	Projections '92/b/
1993	18,157	18,157	2,909	2,909
2010	29,796	22,700	17,698	7,070

/a/ Data from Sedway and Associates, Inc, shown in Section IV.N., Fiscal Analysis.

/b/ Association of Bay Area Governments, *Projections '92*, July 1992.

SOURCE: Sedway and Associates, 1994; ABAG, 1992.

Growth projected to occur under the Land Use Element Update represents the maximum growth potential. If the projected growth occurs by that time, the project would not be consistent with the BAAQMD's '91 CAP. This would be a significant impact.

In order to reduce vehicular emissions, the single largest contributor of air pollution, the BAAQMD in its '91 CAP recommends high-density mixed-use types of developments near transit centers. This type of development discourages "urban sprawl" by concentrating residential and retail/commercial uses to centrally located transit.

The proposed Land Use Element would designate Parcels 1, 3, 4, 5, and 13 for Planned Commercial-Residential and Multi-Family Residential development. These parcels are located along West Contra Costa Transit Authority (WestCAT) bus routes and would be in close proximity to retail/commercial uses. Under the existing land use designations, these parcels would generally be developed with lower density residential uses. While population and employment could exceed ABAG projections, the development pattern would be consistent with the '91 CAP.

Impact Air-5: Mitigation Measures Proposed as Part of the Project

The following policies or programs are from the proposed Land Use Element Update:

Policies 2B, 3A, and 11A, and Programs 3A.1 and 3A.2, discussed in mitigation for Impact Air-3, would help minimize air quality effects and therefore facilitate compliance with '91 CAP.

The following objectives, policies and programs are from the proposed Circulation Element Update:

Objective 2.h, Policy 2.e, and Implementation Programs 6, 10, and 14 discussed in mitigation for Impact Air-3, would help minimize air quality effects and therefore facilitate compliance with '91 CAP.

Impact Air-5: Mitigation Measures identified in other *General Plan* Elements

None identified.

Impact Air-5: Mitigation Measures Identified by this EIR

Mitigation Measure Air-3a and Air-3b, discussed in mitigation for Impact Air-3.

Impact Air-5: Significance After Mitigation

ABAG projections, on which the '91 CAP is based, reflect existing City and County General Plans. Given the increased rate of population and job growth forecast in the Land Use Element Update compared to the existing Land Use Element (adopted *General Plan*), this impact likely would be significant and unavoidable.

Impact Air-6: Development consistent with the Land Use and Circulation Elements Update could expose sensitive receptors to existing and future emissions of non-criteria pollutants. This would not be a significant impact.

Non-criteria air pollutants include toxic air contaminants (TACs) and objectionable odors. Existing and future sensitive receptors could be exposed to future sources of TACs and objectionable odors. Existing odor sources include the Hercules Wastewater Treatment Plant, Pacific Refinery Company, and smaller stationary sources. Existing TAC sources are listed in

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Table IV.K.4. Parcels 1, 3, 4, 6, 7, are closest to the industrial TAC and odor sources. Parcels 7, 9, 10, 11, 12, and 14 are located adjacent to mobile TAC sources.

TAC and odorous emissions existing and future stationary sources would be subject to close scrutiny by the BAAQMD, through the permit process as well as the AB2588 program. The BAAQMD would also respond and act on citizen complaints and concerns regarding odorous emissions from new and existing stationary sources. Non-criteria air pollutant emissions from future stationary sources, therefore, are not expected to be a source of major concern. Non-criteria pollutants from future mobile sources are expected to be relatively steady, although the number of auto trips would increase.

Impact Air-6: Mitigation Measures proposed as part of the project

None identified.

Impact Air-6: Mitigation Measures identified in other *General Plan* Elements

None identified.

Impact Air-6: Mitigation Measures Identified in this EIR

None Identified.

Impact Air-6: Significance after Mitigation

No mitigation is required, and the impact would remain less-than-significant.

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L. NOISE

SETTING

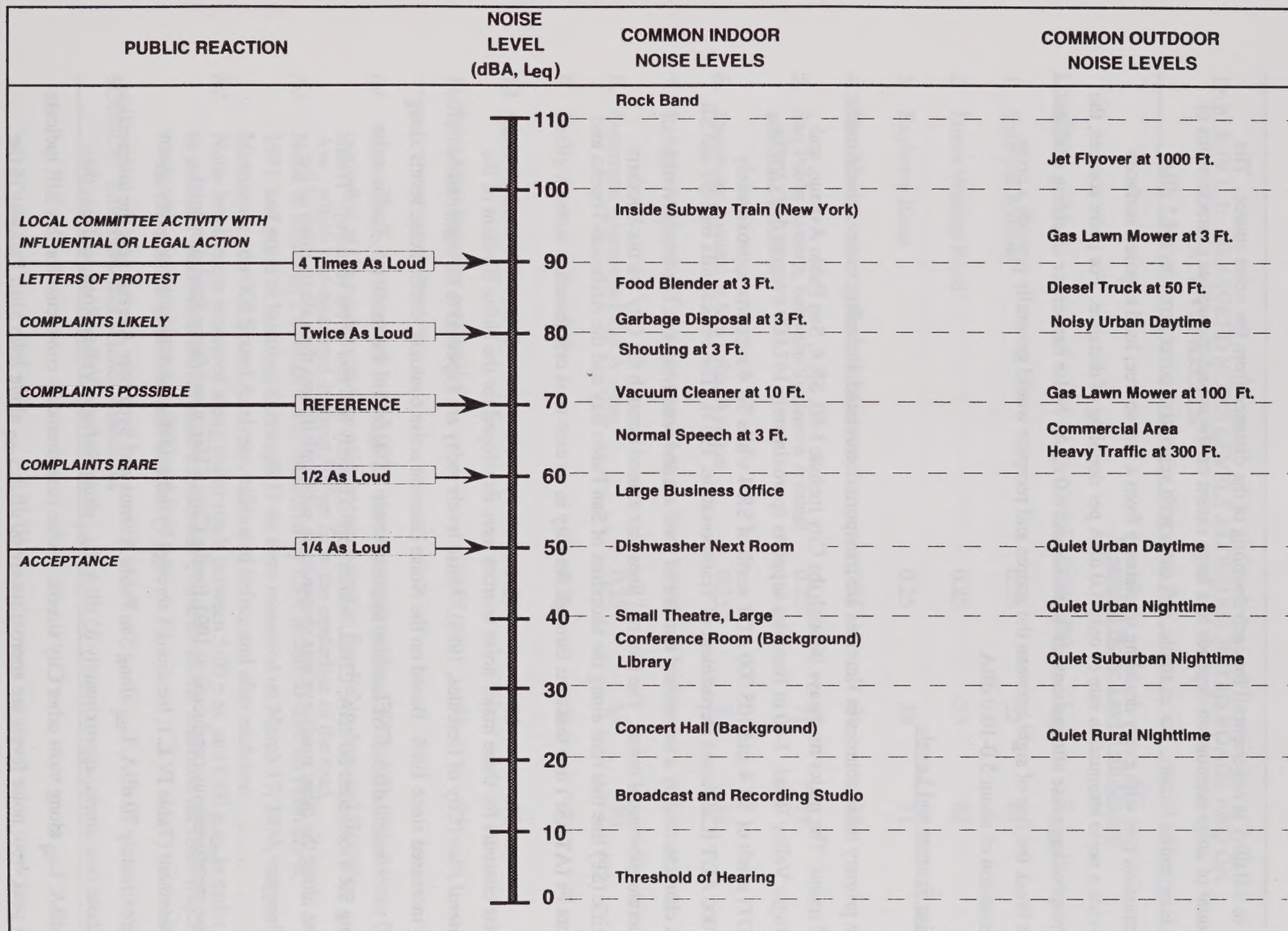
Introduction

Sound waves travel outward from a source and exert a sound pressure (commonly called "sound level") measured in decibels. A decibel (dB) is a logarithmic unit of sound energy intensity. Environmental noise is usually measured in A-weighted decibels (dBA). An A-weighted decibel is a decibel corrected for the variation in frequency response of the human ear at commonly encountered noise levels. In general, people can perceive a three-decibel difference in noise levels; a difference of 10 dBA is perceived as a doubling of loudness. Some commonly-encountered noise sources and their associated noise levels are shown in Figure IV.L.1.

Environmental noise levels typically fluctuate over time, and different types of noise descriptors are used to account for this variability. The ambient noise level is the background noise generated by all sources in the vicinity. Typical noise descriptors include the energy equivalent noise level (L_{eq})¹ and the Community Noise Equivalent Level (CNEL). CNEL is a time-averaged noise descriptor that weights noise exposure to account for the increased annoyance of evening and nighttime noise. The CNEL accounts for the lower tolerance of people to noise during the evening (7:00 p.m. - 10:00 p.m.) and nighttime (10:00 p.m. - 7:00 a.m.) periods, relative to the daytime period (7:00 a.m. - 7:00 p.m.) by adding a five-dBA "penalty" to measured noise levels during the evening period and a 10-dBA penalty to nighttime noise. The CNEL and L_{eq} noise descriptors are commonly used in establishing noise exposure guidelines for specific land uses. The L_{max} is the highest noise level experienced over a short period. Noise levels are measured on a logarithmic scale, and therefore, are not additive in the usual arithmetic manner.

The noise level experienced at a receptor depends on the distance between the source and the receptor, presence or absence of noise barriers and other shielding devices, and the amount of noise attenuation (lessening) provided by the intervening terrain. For line sources such as a highway, noise decreases by about 3.0 to 4.5 dBA for every doubling of distance from the roadway. For point or stationary sources, such as electric motors, a noise reduction of

¹ L_{eq} , the energy-equivalent noise level, is the equivalent steady-state continuous noise level which, in a stated period, would contain the same acoustic energy as the time-varying sound level actually measured during the same period.



SOURCE: Caltrans Transportation Laboratory Noise Manual, 1982; and
Modification by Environmental Science Associates

Hercules General Plan Land Use and Circulation Elements Update / 930314 ■

Figure IV.L.1
Representative Noise Levels

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6.0 to 9.0 dBA is experienced for each doubling of the distance from the noise source. The amount of noise attenuation depends to a large extent on the sound absorptive characteristics of the intervening terrain. For example, soft earth with vegetative cover provides a 4.5 dBA attenuation rate with every doubling of distance from a line source; hard exposed surfaces provide a noise attenuation rate of only 3.0 dBA per doubling of distance. For point sources, the corresponding noise attenuations are 9.0 dBA and 6.0 dBA. Noise barriers or shielding devices that break the line of sight between the source and receptor would generally provide a noise attenuation of about 5.0-10.0 dBA.

Noise Sources and Levels

The primary noise sources in Hercules are transportation-related, including motor vehicle traffic and trains. The major roadways through the City include I-80, SR 4, San Pablo Avenue, and Refugio Valley Road. I-80 in Hercules supports approximately 142,000 average daily traffic (ADT) south of SR 4 and 105,000 ADT north of SR 4 while SR 4 supports approximately 32,000 ADT (California Department of Transportation, 1993). The vehicle mix on I-80 and SR 4 is characterized by a substantial number of medium and heavy trucks. The heavy trucks generate substantial noise. The two rail lines that extend through the City are the Southern Pacific (SP) line that runs along the shoreline of San Pablo Bay and the Atcheson-Topeka and Santa Fe (AT&SF) line that runs through the City in an east-west orientation.

Noise contours for these major noise sources were developed for the Noise Element of the *General Plan* (City of Hercules, 1988). Noise levels today are expected to be higher since traffic has increased since 1988. Based on the Noise Element noise contours, traffic noise levels along I-80 exceeded 60 dBA, CNEL within approximately 2,000 feet of the roadway. Traffic noise along SR 4 exceeded 60 dBA, CNEL within approximately 800 feet of the roadway. Traffic noise along the other roadways was shown to be substantially less than along either of the highways.

Noise measurements conducted in 1991 for the City of Hercules Master Environmental Assessment (Table IV.L.1, locations 1 through 7) indicate that peak-hour noise levels are approximately 70 dBA, L_{eq} along San Pablo Avenue and Sycamore Avenue near the intersection of those two streets, approximately 65 dBA, L_{eq} along Refugio Valley Road, and less than 60 dBA, L_{eq} along most other City streets. Noise measurements conducted for this EIR indicate that peak-hour noise levels are approximately 60 dBA, L_{eq} along John Muir Parkway in the

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TABLE IV.L.1: MEASURED NOISE LEVELS ALONG SELECTED ROADS AND ON VACANT PARCELS

<u>Location</u>	<u>Measured Noise Levels dBA/a,b,c/</u>		
	<u>Duration (hr)</u>	<u>L_{eq}</u>	<u>L_{max}</u>
1. Railroad Avenue	0.25	52	63
2. James Watson Road	0.25	53	65
3. Bayberry Road	0.25	59	81
4. San Pablo Avenue at Hercules Avenue	0.25	64	74
5. San Pablo Avenue, between Sycamore Avenue and State Route 4	0.25	71	78
6. Sycamore Avenue at San Pablo Avenue	0.25	70	83
7. Refugio Valley Road at Sycamore Avenue	0.25	65	87
8. Sycamore Avenue at Palm Avenue	0.25	61	80
9. Skelly Avenue at Parcel B	0.25	59	66
10. Santa Fe Road at Parcel C	0.25	55	73
11. John Muir Parkway on Parcel 6	0.25	61	75

- /a/ Noise levels for locations 1 through 11 were measured at about 20 feet from the centerline of the road, except the noise measurement at San Pablo Ave. and Hercules Ave., which was measured at about 50 feet from the centerline of the road.
- /b/ Noise at locations 1 through 7 was measured by ESA technical staff on February 6, 1991, and noise at locations 8 through 11 on were measured on March 17, 1994, using a Metrosonics db-308 Sound Analyzer, calibrated before and after each use.
- /c/ Noise levels were measured along major roads between 5:00 p.m. and 6:00 p.m. in order to simulate worst-case traffic noise conditions. Noise levels for locations far from major roads were measured between 3:00 and 6:30 p.m.

SOURCE: Environmental Science Associates

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North Shore Business Park, and 55 dBA, L_{eq} along Santa Fe Road near Parcel C (Table IV.L.1, locations 8 through 11). Overall, in most parts of the City, away from major roads and rail lines, ambient noise levels are well below 60 dBA, CNEL. In these areas, traffic noise is barely audible, and the dominating noise sources are residential uses, wind, or building equipment.

Train noise levels along the SP line are higher than along the AT&SF line. Train noise levels exceed 60 dBA, CNEL within approximately 1,300 feet from the SP tracks and approximately 800 feet from the AT&SF tracks. The high noise levels (in terms of CNEL) that characterize the two train lines that run through the City are mostly the result of nighttime train operations, because the CNEL noise descriptor applies a weighting factor to nighttime noise to take into account its more intrusive character (City of Hercules, 1988).

Noise Regulations, Plans, and Policies

Title 24, Part 2 of the California Code of Regulations contains requirements for construction of new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings, intended to limit the extent of noise transmitted into habitable spaces. These requirements are collectively known as the California Noise Insulation Standards. For limiting noise transmitted between adjacent dwelling units, the Standards specify the extent to which walls, doors, and floor-ceiling assemblies must block or absorb sound. For limiting noise from exterior sources, the Standards set forth an interior standard of 45 dBA, CNEL in any habitable room with all doors and windows closed and require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than 60 dBA, CNEL. Title 24 standards are enforced by local agencies through the building permit application process.

The Noise Element of the Hercules *General Plan* provides community noise control objectives and standards (City of Hercules, 1988). The basic objective of the Noise Element is to protect the citizens of Hercules from excessive noise levels which are annoying to the senses and can be detrimental to health. Towards this goal, future residential development sites are to be designed to attain specific residential noise standards. The noise standards used for residential areas are also to be applied to other sensitive land uses, such as schools, hospitals, and libraries. Noise attenuation is to be provided along transportation routes to protect adjacent, sensitive land uses. Recognizing the potential noise impact associated with truck traffic, the Noise Element calls for restricting truck traffic in residential areas except for deliveries within the area or on designated

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truck routes, and, to the extent possible, for limiting truck usage in residential areas to daylight hours (City of Hercules, 1988).

Table IV.L.2 lists the City's noise/land use compatibility standards, which indicate the CNEL noise level ranges that are acceptable for various types of land uses within the community. It shows, for various land uses, the noise level below which a new land use would be considered compatible with the exterior noise environment with no special noise insulation requirements. Table IV.L.2, used in conjunction with the noise measurements and the noise contours developed by the City of Hercules, provides a means to evaluate quickly potential land use conflicts with the existing noise environment.

The City of Hercules does not currently have a noise ordinance.

Sensitive Receptors

Some land uses are more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both time and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, parks and outdoor recreation areas are more sensitive to noise than are commercial and industrial land uses. Based on this definition, future residents of the 24 parcels would be considered sensitive receptors, and the open space/riparian corridor along Refugio Creek would be considered and sensitive land use.

IMPACTS AND MITIGATION MEASURES

Significance Criteria

Based on the CEQA *Guidelines*, a project would normally have a significant effect on the environment if it would increase substantially the ambient noise levels for adjoining areas. Short-term construction noise impacts of the project would be considered significant if: construction activities were to affect noise-sensitive receptors for a substantial amount of time; expected noise levels would endanger the hearing of receptors near the construction site; or construction activities would affect receptors during noise sensitive periods. Construction noise would also be significant if it conflicted with local construction noise standards or policies.

TABLE IV.L.2: NOISE / LAND USE COMPATIBILITY GUIDELINES FOR THE CITY OF HERCULES

Land Use Category	Noise Levels (dBA,CNEL)			
	Normally Acceptable/a/	Conditionally Acceptable/b/	Normally Unacceptable/c/	Clearly Unacceptable/d/
Residential: All types	< 60	60 - 70	70 - 75	75 +
Transient Lodging: Motels, Hotels	< 60	60 - 70	70 - 80	80 +
Schools, Libraries, Churches, Hospitals, Nursing Homes	< 60	60 - 70	70 - 75	75 +
Sports Arenas, Outdoor Spectator Sports, Playgrounds, Neighborhood Parks	< 60	60 - 70	70 - 80	80 +
Golf Courses, Riding Stables, Water Recreation, Cemeteries	< 65	65 - 70	70 - 80	80 +
Office Buildings, Business Commercial, and Professional	< 70	70 - 75	75 - 80	80 +
Industrial, Manufacturing, Utilities, Agriculture	< 70	70 - 75	75 +	NA
Auditoriums, Concert Halls	< 50	50 - 65	65 - 75	75 +
Amphitheaters	< 50	50 - 55	55 - 65	65 +

- /a/ Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements. Indoor and outdoor will be pleasant.
- /b/ Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy, but tolerable.
- /c/ Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.
- /d/ Clearly Unacceptable: New construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.

SOURCE: City of Hercules, Noise Element of the *General Plan*, October 1988.

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Long-term noise impacts would be considered significant if a project would: cause noise levels to increase by five dBA or more, and in the process create a noise environment that is incompatible with acceptable noise levels for existing or planned land uses; cause a three dBA increase (the threshold of noticeable change) where the existing noise environment is already marginally unacceptable for its current use; or introduce new noise sensitive uses into an area that does or would have acceptable noise levels.

According to the CEQA *Guidelines*, a project would normally have a significant effect on the environment it would conflict with adopted environmental plans and goals of the community where it is located. Thus, implementation of the proposed Land Use and Circulation Elements Update would have a significant noise impact if it would introduce new noise-sensitive receptors in areas where ambient noise levels are above the City's recommended noise compatibility standards for "normally acceptable" noise levels.

Impacts

Impact Noise-1: Development consistent with the Land Use and Circulation Elements Update would result in temporary noise impacts related to construction activities. This would be a short-term significant impact.

Construction preparation activities would involve excavation, grading, earth movement, stockpiling, batch dropping operations and vehicle travel. Construction activities such as foundation laying, building construction and finishing operations would also generate noise. Construction equipment would generate vehicular noise. Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. In addition, certain types of construction equipment generate impulsive noises, which can be particularly annoying. Table IV.L.3 shows typical noise levels for different construction stages; Table IV.L.4 shows typical noise levels for various construction equipment.

Assuming a maximum noise level of 89 dBA (no pile driving or rock drilling) at about 50 feet from the source, and a noise attenuation of about 6 dBA to 9 dBA for every doubling of distance, noise levels from construction activities would drop to about 62 dBA to 71 dBA (the maximum normally acceptable noise level in residential areas) at about 400 feet from the source. Under a worst-case scenario, noise-sensitive land uses within 400 feet of a construction site could be exposed to noise levels above the recommended standards during the construction period.

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TABLE IV.L.3: TYPICAL OFFICE CONSTRUCTION NOISE LEVELS

<u>Construction Phase</u>	<u>Noise Level (dBA, L_{eq})/a/</u>
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

/a/ Average noise levels 50 feet from the noisiest source and 200 feet from the rest of the equipment associated with a given construction phase.

SOURCE: United States Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, 1971.

TABLE IV.L.4: TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

<u>Construction Equipment</u>	<u>Noise Level (dBA at 50 feet)</u>
Dump Truck	88
Portable Air Compressor	81
Concrete Mixer (Truck)	85
Jackhammer	88
Scraper	88
Dozer	87
Paver	89
Generator	76
Piledriver	101
Rock Drill	98
Pump	76
Pneumatic Tools	85
Backhoe	85

SOURCE: Cunniff, *Environmental Noise Pollution*, 1977.

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Possible sensitive receptors to construction activities would include new multi-family residential development on Parcels 1, 3, 4, 5, and 13. Existing residential development south of Parcels 1 and 4, and near Parcel 13 could also be noise sensitive.

Because the potential for construction activities to raise ambient noise levels above recommended standards at nearby sensitive receptor locations, construction noise would be considered a short-term, significant impact.

Impact Noise-1: Mitigation Measures Proposed as Part of the Project

None identified.

Impact Noise-1: Mitigation Measures identified in other *General Plan* Elements

The following measure is an objective in the City's Noise Element that would apply to construction-related truck traffic:

Objective 1.d: Restrict truck traffic in residential areas except for deliveries within the area or on designated truck routes. To the extent possible, truck usage in residential areas should be limited to daylight hours.

Impact Noise-1: Additional Mitigation Measures Identified in this EIR

The City shall condition approval of individual development projects on implementation of the following construction noise abatement programs (alternatively, the City could adopt a noise ordinance that includes these measures):

Noise-1a: Require that noisy construction activities be scheduled for periods, such as between 8 a.m. and 6 p.m. on weekdays, when loud noises would have the least impact on adjacent residents and workers.

Noise-1b: Develop a construction schedule that minimizes potential cumulative construction noise impacts and accommodates particularly noise-sensitive periods for nearby land uses (e.g., for schools, churches, etc).

Noise-1c: Require that holes for driven piles be pre-drilled to reduce the level and duration of noise impacts.

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Noise-1d: Construct temporary, solid noise barriers between source and receiver to reduce off-site propagation of construction noise. This measure could reduce construction noise by up to five decibels.

Noise-1e: Require internal combustion engines used for construction purposes to be equipped with a properly operating muffler of a type recommended by the manufacturer. Also, require impact tools to be shielded per manufacturer's specifications.

Impact Noise-1: Significance after Mitigation

Given the temporary nature of construction noise impacts, the measures would reduce the impact to less than significant.

Impact Noise-2: Development consistent with the Land Use and Circulation Elements Update would result in a long-term increase in traffic noise levels along the City road network. This would be a significant impact for existing noise-sensitive uses along several roads.

Development consistent with the Land Use Element would increase traffic along the City road network. The increase in traffic-generated noise could impact existing noise-sensitive receptors. As a percentage increase over existing traffic volumes, the following major roadways would experience the greatest increase: SR 4; Hercules Avenue; and San Pablo Avenue.

Roadside noise levels would increase with the increase in traffic volumes. Peak-hour noise levels have been estimated for existing and future project traffic scenarios using the results of data included in Section IV.B., Transportation and Circulation. Calculated estimates using the Federal Highway Administration (FHWA) Noise Reduction Model are shown in Table IV.L.5.

As discussed above, an increase of 3 dBA would be considered noticeable, and a 5 dBA increase would be considered significant. The following roadways would have a noticeable increase (3 dBA to 4 dBA) in noise due to traffic: San Pablo Avenue between Hercules Avenue and Sycamore Avenue; and San Pablo Avenue between Sycamore Avenue and SR 4. A significant increase (5 dBA or more) would occur on Hercules Avenue, between San Pablo Avenue and Santa Fe Avenue (9.8 dBA increase). The increase would raise the ambient noise level to 66.0 dBA, L_{eq} for existing noise-sensitive land uses along Hercules Avenue and possibly the proposal commercial-resident development on Parcel 5. This noise level is within the City's "Conditionally Acceptable" noise compatibility guideline for residential land uses.

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TABLE IV.L.5: ESTIMATED PEAK-HOUR NOISE LEVELS ALONG SELECTED ROAD SEGMENTS IN HERCULES

Road Segment	Noise level (dBA, L_{eq})/a,b/ Year 2010		
	Existing	Existing Land Use/ Circulation Elements	Proposed Land Use/ Circulation Elements
1. SR 4 (Between Willow Avenue and Bayberry Avenue)	77.8	80.4	80.7
2. I-80 (Between Sycamore Avenue and SR 4)	81.4	81.4	81.5
3. Hercules Avenue (Between San Pablo Avenue and Santa Fe Avenue)	56.2	63.8	66.0
4. Refugio Valley Road (Between Sycamore Avenue and Partridge Drive)	67.3	68.0	68.6
5. San Pablo Avenue (Between Hercules Avenue and Sycamore Avenue)	73.4	75.8	76.7
6. San Pablo Avenue (Between Sycamore Avenue and SR 4)	68.1	70.1	71.9
7. Willow Road (Between Franklin Canyon and I-80)	68.7	68.8	68.4

/a/ Estimates were made using the FHWA Highway Traffic Noise Prediction Model and correspond to a distance of 50 feet from the centerline, and 100 feet from SR 4 and I-80.

/b/ Assumes the following medium- and heavy-duty truck percentages: 3 percent medium and 5 percent heavy on SR 4; 3 percent medium and five percent heavy-duty on I-80 (California Department of Transportation, 1992).

SOURCE: Environmental Science Associates, 1994.

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Traffic-generated noise would also increase along roadways not selected in the modeling analysis. These areas may include: North Shore Business Park roadways; Skelly Avenue; Railroad Avenue in the Historic District area, and SR 4 East of Willow. Because at least one road used in the modeling analysis (Hercules Avenue) and possibly others would experience a 5 dBA increase due to traffic noise and also be in the City's "Conditionally Acceptable" category for residential land uses, this would be a significant impact.

Impact Noise-2: Mitigation Measures Proposed as Part of the Project

The following objectives are contained in the proposed Circulation Element:

Objective 2.b: Coordinate the street system with land use and other elements of the *General Plan*.

Objective 2.g: Minimize through traffic in residential neighborhoods.

Impact Noise-2: Mitigation Measures identified in other *General Plan* Elements

Noise Element implementation measures that apply to existing noise-sensitive land uses that would be subject future traffic noise include:

Implementation Measure 2.a: Traffic Planning. Roadway design, traffic signalization and other traffic planning techniques can reduce noise caused by speed or acceleration of vehicles. The limiting of truck traffic to certain designated sections of the City can help in maintaining acceptable noise levels in residential neighborhoods.

Implementation Measure 2.d: Noise Barriers. Noise barriers are commonly used to reduce noise levels from ground transportation noise sources and industrial sources. Noise barriers serve a dual purpose in that they can reduce the noise level both outdoors and indoors. To be effective, a noise barrier must be massive enough to prevent significant noise transmission through it and high enough to shield the receiver from the noise sources. The minimum acceptable weight for a noise barrier is four lb/square foot (equivalent to 3/4 inch plywood) and the barrier must be carefully constructed so that there are no cracks or openings. To be effective, a barrier must interrupt the line-of-sight between the noise source and the receiver. Another important consideration in the design of noise barriers is the phenomenon of flanking. The effects of flanking can be minimized by bending the wall back from the noise source at the ends of the barrier.

Implementation Measure 3: Noise levels from transportation systems and other sources should be monitored in terms of community standards as the City grows. If levels are found to be increasing to unacceptable levels, the City may choose to adopt and enforce ordinances regulating various noise generators within the City.

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Impact Noise-2: Mitigation Measures Identified in this EIR

Noise-2a: The City shall limit truck traffic to between 7:00 a.m. and 6:00 p.m. and prohibit heavy-duty diesel trucks on Hercules Avenue.

Impact Noise-2: Significance after Mitigation

If the City applied Implementation Measure 2a from the Noise Element and Mitigation Measure Noise-2a identified above, existing noise-sensitive land uses would not likely be exposed to unacceptable noise levels from an increase in traffic. The traffic noise would be mostly due to the heavy duty diesel trucks that would be expected to use Hercules Avenue. The impact could be mitigated to a less-than-significant level.

Impact Noise-3: Noise from stationary sources developed under the Land Use and Circulation Elements Update could raise ambient noise levels above City standards. This would be a significant impact.

Stationary noise sources would include residential units and commercial (retail, industrial, and other research) land uses. Noise from residences and commercial land uses that can be heard at surrounding uses consists mainly of noise from heating and ventilation (HVAC) equipment. Noise levels from commercial central air conditioning units is over 100 dBA at very close distances (U.S. EPA, 1971). Without shielding, noise from such units decreases to about 65 dBA or less at about 700 feet from the source. These units normally have noise shielding cabinets, and are not generally cited as or found to be sources of significant noise impacts. The use of loading docks and associated truck traffic could be a significant noise source. (Noise from vehicle operations is discussed in Impact Noise-2.)

Where new noise sources are sufficiently far from noise-sensitive land uses, with noise-buffering "soft" land uses such as open space in between, new noise sources would not be expected to raise ambient noise levels at those land uses noticeably. Existing residential land uses would, however, be located close enough to new noise sources to be exposed above the City's recommended noise standards. Existing residential areas south of Sycamore Avenue, south of Parcel 1, and in the Historic District could be exposed to new noise sources that are above City standards. Future residents of the parcels with mixed Planned Commercial-Residential and Industrial-Residential land use designations could also be exposed to noise from stationary sources that would be developed in proximity. Noise impacts from future stationary sources could be considered a significant impact.

Impact Noise-3: Mitigation Measures Proposed as Part of the Project

None identified.

Impact Noise-3: Mitigation Measures identified in other *General Plan* Elements

The following measures are from the City's Noise Element:

"Normally Unacceptable" Land Use Compatibility: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features must be included in the design. Outdoor areas must be shielded.

Implementation Measure 1.a-1.b: General Plan, Zoning Proposals and Neighborhood Plans. The proposed neighborhood plan will be reviewed in terms of present and future noise levels and means of noise attenuation. Techniques such as site and building design, barriers, and traffic planning will be considered and incorporated into the Plan where needed.

Implementation Measure 2.b: Site Planning. Proper site planning to reduce noise impacts is the first area that should be investigated for a given project. By taking advantage of the natural shape and contours of the site, it is often possible to arrange the buildings and other uses in a manner which will reduce and possibly eliminate noise impacts. Site planning techniques include:

- Increasing distance between the noise source and receiver.
- Placing non-noise sensitive structures such as parking lots, maintenance facilities and utility areas between the source and receiver.
- Using non-noise sensitive structures such as garages to shield noise-sensitive areas.
- Orienting buildings to shield outdoor spaces from a noise source.

Implementation Measure 2.c: Architectural Layout. In many cases, noise reduction requirements can be met by giving attention to the layout of noise-sensitive spaces. Bedrooms, for example, will be considerably quieter if placed on the side of the house facing away from the highway. Proper architectural layout often can eliminate the need for costly construction modifications.

Implementation Measure 2.e: If site planning, architectural layout, noise barriers or a combination of these measures do not achieve the required noise reduction for the building in question, it will be necessary to modify the building's construction. Indoor noise levels due to exterior sources are controlled by the noise reduction characteristics of the building shell.

In general, windows and doors are the acoustical weak links in a building. Often all that is required is that the windows be sealed on the noisy side of the building and an alternate means of ventilating the building be provided. Beyond this, thicker windows or double-glazed windows will be required. Doors should not be located on the side of the building facing a noisy source. If they are, they should be solid core doors and should be equipped with an appropriate acoustical door gasket.

IV. Environmental Setting, Impacts and Mitigation Measures

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In cases where more noise reduction is required, the ceiling, roof, and/or walls must be modified to provide the required noise reduction. The actual modifications will depend on the amount of noise reduction required.

Implementation Measure 2.f: The Noise Exposure Contours and the California Noise Insulation Standards. The California Noise Insulation Standards (Title 24 of the California Government Code) for multi-family dwellings requires an acoustical report for dwellings proposed in areas where the CNEL exceeds 60 dBA. The purpose of the acoustical report is to demonstrate the manner by which the development will meet the standards for interior noise levels. The year 2000, 60 dBA, CNEL noise contours on the noise exposure map should be used to determine where a noise measurement will be required to determine compliance with the standard. In those cases where development will be located in an area where the CNEL exceeds 60 then the acoustical report would be required.

Impact Noise-3: Mitigation Measures Identified in this EIR

Noise-3a: As discussed in Impact Noise-1, the City could revise the Municipal Code to include a Noise Ordinance. The Noise Ordinance would encourage the scheduling of noisy activities during normal business hours so that they would have the least interrupting and intrusive effect at nearby residential land uses.

Condition approval of individual development projects under the Land Use Element Update upon the following mitigation measure:

Noise-3b: The City shall review new development proposals for noise sources that could impact existing land uses. Proposed projects must demonstrate that any new noise sources would not impact existing land uses.

Impact Noise-3: Significance After Mitigation

The *General Plan* Noise Element is self-mitigating. Noise impacts from stationary sources would be reduced to a less-than-significant level.

Impact Noise-4: New roads developed under the Circulation Element Update would increase noise levels along the new alignments. This would be a less-than-significant impact.

The proposed Circulation Element would require development of additional roadways in the North Shore Business Park and a roadway (Claeys Road) connecting Sycamore Avenue with residential areas of Refugio Valley. The new roadways would introduce traffic-generated noise into an undeveloped area. Traffic-generated noise would likely be 5 dBA, L_{eq} above the existing noise level in North Shore Business Park; however, the traffic volumes would be relatively low and would be unlikely to exceed the City's "Normally Acceptable" noise

IV. Environmental Setting, Impacts and Mitigation Measures

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compatibility guideline of 70 dBA, CNEL for professional land uses. Furthermore, there are no existing or planned noise-sensitive land uses along these roadways. Therefore, the impact would be less-than-significant.

For the proposed Claeys Road extension between Sycamore Avenue and Lupine Road, peak-hour traffic-generated noise would increase to about 57 dBA, L_{eq} . The proposed Claeys Road extension would add traffic to existing residential roadways (such as Lupine Road) that are currently quiet due to low traffic volumes. The projected peak-hour noise level of 57 dBA, L_{eq} would be within the City's "Normally Acceptable" noise compatibility guideline of 60 dBA. In this category, existing residential development would not require any special noise insulation requirements and the exterior noise environment would be "pleasant" (City of Hercules, 1988). Since the projected noise environment would be compatible with the existing residential development, the impact would be less-than-significant.

Impact Noise-4: Mitigation Measures Proposed as Part of the Project

The following objectives are contained in the proposed Circulation Element Update:

Objective 2.b: Coordinate the street system with land use and other elements of the *General Plan*.

Objective 2.g: Minimize through traffic in residential neighborhoods.

Impact Noise-4: Mitigation Measures identified in other *General Plan* Elements

The following measure is an objective in the City's Noise Element:

Objective 1.d: Restrict truck traffic in residential areas except for deliveries within the area or on designated truck routes. To the extent possible, truck usage in residential areas should be limited to daylight hours.

Impact Noise-4: Mitigation Measures Identified in this EIR

Noise 4a: The City shall post signs prohibiting trucks from using the proposed Claeys Road extension, except for local deliveries. All other trucks shall be required to use Sycamore Avenue to reach the Claeys Road/SR 4 interchange.

Impact Noise-4: Significance After Mitigation

No mitigation is required, and the impact would remain less-than-significant.

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Impact Noise-5: Development consistent with the proposed Land Use and Circulation Elements Update would expose future noise-sensitive land uses to traffic and railroad noise above the City's recommended standards. This would be a significant impact.

Roadways that would experience an increase in traffic could be accompanied with a 5 dBA noise increase (the increases on some roadways are shown in Table IV.L.5). This could expose future City residents to noise levels above City standards. This would occur where the traffic noise level is within the City's "Conditionally Acceptable" noise compatibility guideline of 60 dBA, CNEL or more, and would be a significant impact. Some roads, including San Pablo Avenue, may currently generate noise levels above City standards for adjacent residential uses.

According to the Noise Element of the *General Plan*, Portions of Parcels 13 and B lie within the Santa Fe Railway 60 - 70 and 70 - 75 dBA, CNEL noise contour line. Trains operate at all hours on the Santa Fe line, including between the hours of 10:00 p.m. and 7:00 a.m. The CNEL noise level used in the Noise Element penalizes each nighttime operation by 10 decibels (i.e., it weights each nighttime operation as the equivalent of 10 daytime operations). The proposed multi-family medium-density designation on Parcel 1 could also expose future residents to noise from trains on the Southern Pacific line. The Noise Element uses the CNEL to take into account the increased sensitivity of persons to noise that occurs during sleeping hours. The City's Noise Contours are based on worst-case noise conditions of high train frequency and do not account for varying terrain.

Under the proposed Land Use Element, Parcels 13 and B would be developed with planned commercial/residential and multi-family low density residential uses, respectively. The Noise Element compatibility guidelines show 70 -75 dBA, CNEL as the "Normally Unacceptable" category for this type of residential land use. According to the Noise Element, development in the "Normally Unacceptable" category is discouraged and requires a noise analysis. Development on Parcels 13 and B without a noise analysis (and appropriate mitigation) would be a significant impact.

Impact Noise-5: Mitigation Measures Proposed as Part of the Project

The following objectives and policies are contained in the proposed Circulation Element Update:

Objective 2.b: Coordinate the street system with land use and other elements of the *General Plan*.

Objective 2.g: Minimize through traffic in residential neighborhoods.

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Policy 2.b: Neighborhood design should discourage through traffic on local streets.

Policy 2.c: Residential streets will be designed in relation to the needed capacity and the adjoining housing patterns.

Impact Noise-5: Mitigation Measures identified in other *General Plan* Elements

The following measures are from the City's *General Plan* Noise Element.

Implementation Measures 1.a, 1.b, 2.a, 2.b, 2.c, 2.d, 2.e, 2.f, 3, and the "Normally Unacceptable" Land Use Compatibility guideline identified above.

Impact Noise-5: Mitigation Measures identified in this EIR

Mitigation Measure Noise-2a identified above.

Impact Noise-5: Significance After Mitigation

The *General Plan* Noise Element provides adequate policies and implementation measures to protect future residents for traffic and train noise levels that are above City standards. With mitigation, the impact would be less than significant.

REFERENCES - Noise

California Department of Transportation, *1991 Annual Average Daily Truck Traffic on the California State Highway System*, November 1992.

California Department of Transportation, *1992 Traffic Volumes on California State Highways*, July 1993.

City of Hercules, Noise Element of the *General Plan*, October 1988.

Cuniff, Patrick F., *Environmental Noise Pollution*, 1977.

United States Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances*, 1971.

M. ENERGY

SETTING

Energy Conservation, Plans, Policies and Standards

State

State energy-related policies recognize the vulnerability of the State due to dependence on foreign sources of oil to meet energy demands and the connection between energy consumption and air pollution. Thus, the California Energy Commission (CEC) calls for the State to aggressively work to increase the efficiency of its transportation system and the vehicles that use it, since they consume three-fourths of the oil and half of all the energy used in the state, and are the major source of air pollution in California (California Energy Commission, 1991).

This policy is to be advanced by local governments, which are to promote energy savings by requiring cost-effective, energy-efficient integrated transportation and land use planning. The State is to encourage more passengers per vehicle through expanded use of vanpools, carpools, and shuttles. The State is also to provide cost-effective facilities that improve the availability, convenience, and acceptability of walking, biking, and public transit, and to increase travel efficiency by use of on-board automobile computer systems.

Energy consumption of new buildings in California is regulated by the State Building Energy Efficiency Standards, embodied in Title 24 of the California Code of Regulations (California Energy Commission, 1992). The efficiency standards apply to new construction of both residential and non-residential buildings, and regulate energy consumed for space heating, cooling, ventilating, water heating, and lighting. The building efficiency standards are enforced through the local building permit process.

Compliance with Title 24 can be achieved through either a "performance" or a "prescriptive" approach. In the performance compliance approach, a building must be designed to consume no more energy than specified in the appropriate energy "budget." The energy budget is based on building size and type, and the climatic zone in which it is located. Under the prescriptive approach, the builder can choose from a variety of alternative component packages which specify features such as insulation, glazing, lighting, shading, and water- and space-heating systems. There are also certain mandatory requirements that must be fulfilled under both compliance approaches.

Energy Supply and Use

Oil provides about 54 percent of the state's energy need, and natural gas provides about 31 percent (California Energy Commission, 1990). The remaining 15 percent of the state's energy need is provided by other sources, such as nuclear, hydroelectric, and solar power. The two major uses of energy are as fuel for transportation and electricity.

The City of Hercules is within the electricity and natural gas service area of Pacific Gas and Electric Company (PG&E). PG&E provided over 76 billion kilowatt-hours¹ of electricity to its customers in 1993 from various generating sources, including oil-fired power plants, hydroelectric and nuclear plants, and other producers, including wind farms and cogeneration facilities, among others. During 1993, PG&E supplied its customers with approximately 430 billion cubic feet of natural gas (PG&E, 1994).

PG&E supplies electricity and natural gas to the City of Hercules. The City is served by the PG&E Franklin electrical substation. This substation has one 60/12 kilovolt (kV) transformer bank with a summer-normal capability of 20.63 megawatts (MW).² The 1990 summer peak load on the substation was 18.0 MW, which leaves a reserve capacity of 2.63 MW. Currently, one 60-kV and one 115-kV transmission line cross through Hercules. There are plans to transfer loads from the circuits serving Hercules in order to accommodate new loads. PG&E maintains two major gas transmission pipelines through Hercules (Gore, 1994).

Most of the 24 parcels are currently undeveloped, and consume minimal amounts of energy. Existing developments on the parcels that consume natural gas and electricity include the Hercules Square retail-office center (Parcel 8), the North Shore Business Park (Parcel 6), and industrial development associated with the former Hercules Powder Plant (Parcel 1). The Willow Shopping Center (Parcel I) is developed and also uses natural gas and electricity. Current development in Hercules also consumes non-renewable energy for vehicle trips, specifically gasoline and diesel fuels. Energy consumption on Parcels 8 and I would not increase under the proposed Land Use Element Update, as the parcels are currently developed and would only be redesignated.

¹ One kilowatt-hour (kWh) electric equal roughly 10,000 British Thermal Units (Btu) depending on the conversion factor assumed for converting fossil fuel into electricity. One Btu is the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at sea level.

² One megawatt (MW) is one million watts.

IMPACTS AND MITIGATION MEASURES

Significance Criteria

Under the CEQA *Guidelines*, a project would normally have a significant effect on the environment if it would encourage activities that resulted in the use of large amounts of fuel or energy, or would use fuel or energy in a wasteful manner. There are no specific State or federal standards that indicate what is considered to be a "large amount" of energy. For purposes of this report, the project would be considered to use fuel or energy in a wasteful manner if it would use more fuel or energy than would be reasonably expected or would use energy in a manner that is inconsistent with common energy conservation practices.

Impacts

Impact Energy-1: Increased energy consumption related to construction and operation of development consistent with the Land Use and Circulation Elements Update would derive mostly from non-renewable energy resources. This would not be a significant impact.

Construction energy expenditures would be short-term, and would consist of both direct and indirect expenditures of energy. Combustion of the refined petroleum products needed to operate construction equipment would be a direct energy expenditure. Indirect energy is consumed through sectors that provide inputs to an activity, rather than energy consumed by the activity itself. For example, the use of a steel beam in construction indirectly represents energy consumed in all of the industries that contributed to the production of the beam (e.g., energy consumed through mining and extraction of raw materials, manufacturing, and transportation). Indirect energy typically represents about three-quarters of total construction energy; direct energy represents about one-quarter of total energy construction (Hannon, 1978).

Assuming that buildout occurred as proposed, the amount of energy that would be required for construction would be about 11,000 billion Btu.³ Annualized over a 15-year period (expected buildout is in year 2010), total construction energy would be about 750 billion Btu/year.

³ Construction energy estimates were derived from a factor of 700,000 Btu/square foot for residential use and a factor of 940,000 Btu/square foot for commercial use. Calculations assume the construction of 9.8 million square feet (3,816 units with an average size of 2,500 square feet) of residential use and 5.1 million square feet of commercial use. Both of these factors are from Hannon, B., et al., "Energy and Labor in the Construction Sector," 1978, *Science* 202; pp. 837-847. Actual construction energy consumption could be less, as estimate assumes maximum number of square feet for residential and commercial.

Table IV.M.1 provides a summary of the total energy that would be consumed during construction under the proposed Land Use and Circulation Elements Update.

TABLE IV.M.1: ANNUAL PROJECT ENERGY CONSUMPTION, 2010

<u>Consumption Phase</u>	<u>Energy Resource Description</u>	<u>Btu/year</u>
Construction/a/	Direct and Indirect	750 billion
Operational	Electricity	856 billion
	Natural Gas	395 billion
	Gasoline, Diesel	6 billion
TOTAL		2,007 billion

/a/ Annualized over a 15-year development lifetime.

SOURCE: Hannon, B., et al., "Energy and Labor in the Construction Sector," *Science* 202; pp. 837-847.

Once operational, new land use development in Hercules would increase consumption of electricity, natural gas, and gasoline/diesel fuel. Buildings constructed in the City would be designed in accordance with Title 24, which would reduce the need for consumption of electricity and natural gas for heating, cooling, ventilating, water heating and lighting purposes. Increased employment in the area would result in greater vehicle trips to and from developed operational sites with a corresponding increase in the consumption of gasoline and diesel fuel.

At buildout, annual electrical consumption with operation of 5.1 million square feet of commercial and 9.5 million square feet of residential development would be 86 million kWh, equivalent to approximately 856 billion Btu. Annual natural gas consumption would increase by approximately 359 million cubic feet, equivalent to approximately 395 billion Btu.⁴

⁴ Future (Year 2010) energy consumption estimates were based on PG&E annual electricity factors of 12.43 kWh/square foot for commercial uses, and South Coast Air Quality Management District electricity factors for residential use of 6,081 kWh/unit/year. Gas consumption based on 3,918 cubic feet/unit/month for 3,816 residential units and 2.9 cubic feet/square feet/month for 5,186,327 square feet of commercial land use. One cubic foot of natural gas is equal to 1,100 Btu.

Transportation uses would consume an additional 47,150 gallons of gasoline and diesel per year (6 billion Btu).⁵ On an annual basis, the total increase in energy attributable to the project (including electricity, natural gas, gasoline/diesel fuel, and annualized construction-related energy consumption) in 2010 would be approximately 2,007 billion Btu. Almost all of this energy would be derived from non-renewable resources, although some of the electricity would be derived from wind, solar, or cogeneration sources. This would not be considered a large amount of energy, and would not be used in a wasteful manner. Therefore, the increase in energy consumption due to the project would not be significant.

Impact Energy-1: Mitigation Measures Proposed as Part of the Project

The following mitigation measure is required by law and would be considered part of the project:

Energy-1a: All new buildings would be required to meet the standards for energy efficiency as set forth in Title 24 of the California Code of Regulations. These standards would reduce the possibility of wasteful energy use with respect to building heating, cooling, and lighting.

Impact Energy-1: Mitigation Measures identified in other *General Plan* Elements

None identified.

Impact Energy-1: Mitigation Measures Identified in this EIR

The City shall condition approval of individual development proposals on the following mitigation measures:

Energy-1b: A performance standard that exceeds Title 24 Standards by 10 percent. Under such a standard, the City would require project sponsors of individual projects to design their projects to exceed Title 24 energy conservation performance standards by a certain percentage (at least 10 percent), based on the same calculation methods required for demonstrating compliance with the standard. Title 24 energy conservation performance standards are not particularly challenging, and so achieving an energy efficiency substantially greater than the minimum 10 percent could be interpreted as maximizing the energy efficiency of the project. Sponsors could meet the standard by incorporating the same or all of the following into their projects.

⁵ Transportation-related energy estimates are based on an estimated 844,000 daily increase in vehicle-miles traveled in the San Francisco Bay Area and an average gasoline efficiency of 17.9 miles per gallon in a composite fleet mix (California Department of Transportation, 1989). One gallon of gasoline is roughly equal to 140,000 Btu.

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- Design large commercial and office structures with a computer-controlled HVAC system for maximum efficiency.
- Install occupant-controlled light switches and thermostats to permit individual adjustments to lighting, heating, and cooling, to avoid unnecessary energy consumption.
- Ensure that larger commercial and multi-family residential structures built are well-sealed to prevent outside air from infiltrating and increasing interior space-conditioning loads. Design building entrances with vestibules to restrict infiltration of unconditioned air and exfiltration of conditioned air.
- Design window systems and use other means to reduce thermal gain and loss, and thus cooling loads, during warm weather and heating loads during cool weather.
- Air distribution systems in large commercial structures could be designed by the project sponsor to cascade ventilation air from high-priority areas to low-priority areas before exhausting it, thereby decreasing the volume of ventilation air required. For example, air could be cascaded from occupied space to corridors to mechanical spaces before being exhausted.
- Install high-efficiency lamps for all street and parking lot lighting to reduce electricity consumption.
- In large commercial structures, install low-and-medium-static pressure terminal units and ductwork to reduce energy consumption by air distribution systems.
- In commercial buildings, limit domestic hot water outlet temperatures to 100° Fahrenheit.
- In large commercial projects, finish exterior walls with light-colored materials having emissivity characteristics to reduce cooling loads.
- Design open space within and around the project to minimize paved areas and maximize landscape plantings using low-water species to reduce outdoor temperatures around the buildings in warm weather.
- In commercial structures, install fluorescent and high-intensity discharge lamps, which give the highest light output per watt of electricity consumed, wherever possible.

Energy-1c: To reduce transportation-related energy, implement the measures that are identified in Sections IV.B., Transportation and Circulation, and IV.K., Air Quality.

Impact Energy-1: Significance After Mitigation

Less-than-significant.

Impact Energy-2: Development would result in interference with PG&E transmission and distribution facilities. This would be a less than significant impact.

PG&E operates 60-kV and 115-kV transmission lines through Hercules. These lines run parallel to, or across Parcels 1, 7, and 12. The overhead line that crosses Parcel 12 leads to the adjacent Franklin substation. Development on any of these parcels could impede access to these lines by PG&E crews for routine or reconstruction work.

Impact Energy-2: Mitigation Measures Proposed as Part of the Project

None Identified.

Impact Energy-2: Mitigation Measures identified in other *General Plan* Elements

None identified.

Impact Energy-2: Mitigation Measures identified in this EIR

Energy-2a: The City shall preserve access for PG&E to work on electric and natural gas lines that extend through or adjacent to Parcels 1, 7, and 12, possibly through deeding of access rights-of-way.

Energy-2b: The City shall require individual developers or commercial tenants contact PG&E during the building application process to allow PG&E to review specific development plans with respect to potential impacts on PG&E distribution facilities.

Impact Energy-2: Significance After Mitigation

The impact would remain at a less-than-significant level.

Impact Energy-3: Development consistent with the Land Use and Circulation Elements Update would require additional electrical distribution lines and a second transformer bank at the Franklin substation. This would be a less than significant impact.

In order to serve the load demand for each parcel, distribution lines would have to be installed, extended, and/or upgraded. Electricity would be provided to unimproved parcels if the developer agrees to pay for on-site distribution line improvements and extensions.

IV. Environmental Setting, Impacts and Mitigation Measures
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In addition, a second transformer bank would have to be installed at the Franklin substation. As discussed above the Franklin substation serves the entire Hercules area, and part of Pinole and Crockett. The installation of the transformer bank and the feeders to the vicinity of unimproved parcels would require a capital investment by PG&E (Gabriel, 1994). Since PG&E would supply the increased demand for electricity from electricity and gas sales, the impact would be less-than-significant.

Impact Energy-3: Mitigation Measures Proposed as Part of the Project

None identified

Impact Energy-3: Mitigation Measures identified in other *General Plan* Elements

None identified.

Impact Energy-3: Mitigation Measures Identified in this EIR

None identified.

Impact Energy-3: Significance After Mitigation

No mitigation is required, and the impact would remain less than significant.

REFERENCES - Energy

California Department of Transportation, *California Motor Vehicle Stock, Travel and Fuel Forecast*, November 1989.

California Energy Commission, *Energy Agenda*, 1990.

California Energy Commission, *The 1992-1993 California Energy Plan*, 1991.

California Energy Commission, *California Code of Regulations, Title 24, Part 2, Chapter 2-53*. Enforcement of Title 24 standards is addressed in the *California Code of Regulations, Title 20, Chapter 2*.

Gabriel, Jose, Distribution Engineer, Pacific Gas and Electric, letter to Mr. Gary Hembree, City of Hercules, March 17, 1994.

IV. Environmental Setting, Impacts and Mitigation Measures

M. Energy

Gore, Nat, Division Gas Engineer, Pacific Gas and Electric Company, telephone conversation, November 17, 1993.

Hannon, Bruce, et al., "Energy and Labor in the Construction Sector," Science 202; pp. 837-847.

Pacific Gas and Electric Company, *1993 Annual Report*, February 1994.

The Land Use and Circulation Elements Update, if implemented, would result in significant adverse environmental impacts. Mitigation measures included as policies, programs, and regulations in the updated Land Use Element Update, as well as measures identified by this report, would reduce most of the impacts to a less than significant level. The following significant adverse impacts would be unavoidable, even with the implementation of the identified mitigation measures:

Impact Transportation-1: Traffic generated by development consistent with the proposed Land Use and Circulation Elements Update would contribute to unacceptable levels of service in the San Pablo Avenue/Elgin Street Parkway and San Pablo Avenue/Sycamore Avenue intersections in the am, and pm, peak hours.

Impact Transportation-2: Traffic generated by development consistent with the proposed Land Use Elements would contribute to unacceptable cumulative levels of service on the SR99 freeway.

Impact Schools-1: Development consistent with the proposed Land Use and Circulation Elements Update would increase the number of students served by the West Contra Costa Unified School District.

Impact Park-1: Development consistent with the proposed Land Use and Circulation Elements Update would increase the need for neighborhood and community parks.

Impact Hazard-1: Construction of hazardous waste by new industries in the project area (as discussed under Impact Hazard-3) would add to cumulative hazardous waste regional requirements to the Contra Costa County and approval of any environmental waste within the project area (as discussed under Impact Hazard-1) would increase the cumulative burden on existing landfill storage capacity.

Impact Air-1: Projects and development under the proposed Land Use and Circulation Elements Update would generate volatile air pollutants that would increase total air pollutant emissions in the region.

Impact Air-2: The Land Use Elements Update would result in increases in population and employment beyond ADAG projections and, therefore, would not be consistent with the ADAG Goal Air Plan.

V. IMPACT OVERVIEW

A. SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL IMPACTS

The Land Use and Circulation Elements Update, if implemented, could result in significant adverse environmental impacts. Mitigation measures included as policies, programs, and regulations in the updated Land Use Element Update, as well as measures identified by this report, would reduce most of the impacts to a less-than-significant level. The following significant adverse impacts would be unavoidable, even with the implementation of the identified mitigation measures:

Impact Transportation-1: Traffic generated by development consistent with the proposed Land Use and Circulation Elements Update would contribute to unacceptable levels of service at the San Pablo Avenue/John Muir Parkway and San Pablo Avenue/Sycamore Avenue intersections in the a.m. and p.m. peak hours.

Impact Transportation-3: Traffic generated by development consistent with the proposed Land Use Element would contribute to unacceptable cumulative levels of service on the I-80 freeway.

Impact Schools-1: Development consistent with the proposed Land Use and Circulation Elements Update would increase the number of students served by the West Contra Costa Unified School District.

Impact Park-1: Development consistent with the Land Use and Circulation Elements Update would increase the need for neighborhood and community parks.

Impact Hazard-7: Generation of hazardous waste by new industries in the project area (as discussed under Impact Hazard-3) would add to cumulative hazardous waste disposal requirements in the County. Cleanup and disposal of any contaminated soils within the project area (as discussed under Impact Hazard-1) would increase the cumulative burden on existing landfill storage capacity.

Impact Air-3: Projected development under the proposed Land Use and Circulation Elements Update would generate criteria air pollutants that would increase total air pollutant emissions in the region.

Impact Air-5: The Land Use Element Update would result in increases in population and employment beyond ABAG projections and, therefore, would not be consistent or in conformance with the *1991 Clean Air Plan*.

B. SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES AND COMMITMENT OF RESOURCES

Development allowed by the Land Use and Circulation Elements Update would require an irreversible commitment of natural resources for building construction, such as wood, refined metals, petroleum, and stone. It would result in the irretrievable commitment of energy and water to support the projected urban development that would occur. Where the development would involve substantial grading, excavation, or other alteration to existing topography, these effects would also be irreversible.

C. GROWTH INDUCEMENT

Growth inducement concerns are related to those characteristics of a project that would foster or encourage population and/or economic growth. The Land Use and Circulation Elements Update would directly affect growth as a result of jobs or housing created as allowed under the Land Use Element Update, secondary growth which might be fostered by the presence of new businesses or residents, and growth that might result from a development project that removes an obstacle to population or economic expansion.

Development consistent with the proposed Land Use and Circulation Elements Update would increase the City of Hercules' population by approximately 11,000 people and introduce additional residential and commercial development, as well as employment, into the West Contra Costa County area. It would directly foster growth in the City of Hercules as well as indirectly encourage additional growth in portions of the area surrounding the City, including Richmond, Pinole, Rodeo, Martinez and other East Bay communities.

Employment growth would occur within the area through the development of commercial land uses. Employment growth resulting from the project would not always be reflected directly in an increased demand for new housing, as some new jobs would be held by individuals who already live in the City, who live in the City but were previously unemployed, or who live outside the City by choice or for reasons of housing affordability. However, the substantial growth in employment projected under the Land Use Element Update (from approximately 3,000 jobs in Hercules in 1994 to approximately 18,300 jobs in Hercules in 2010) would likely result in a demand for housing in Hercules and in surrounding communities. As discussed in Section IV.C., Population, Employment, and Housing, Hercules is currently a substantial net importer of labor (*i.e.*, the City has more employed residents than jobs). Development under the proposed Land

Use and Circulation Elements Update would move the City toward at least a theoretical jobs-housing balance, which could have beneficial effects on traffic and air quality.

Increased employment and housing resulting from the project would also increase the demand for retail goods and services provided through the commercial and regional shopping centers. The introduction of new retail and commercial uses could act to further attract new residents to the area as well as intensify development in portions of the City.

D. CUMULATIVE IMPACTS

CEQA defines cumulative impacts as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA *Guidelines*, Section 15355). Because the direct impact of the Land Use and Circulation Elements Update would involve no immediate physical environmental impact, the EIR impact analysis has focused on the secondary (indirect) impacts of the updated Elements. These secondary impacts would result primarily from the development of each of the 24 parcels.

Because these impacts would occur over time as part of individual residential and commercial development projects, a project horizon year (2010) was established for buildout of the City. The growth and changes in land use that were analyzed as secondary impacts of the project throughout the EIR were projected to the year 2010, employing a cumulative analysis methodology. Future growth was projected by Sedway and Associates and information developed by the Association of Bay Area Governments. Section IV.C, Population, Employment and Housing, includes a discussion of the methodology applied to generate future estimates, and includes specific consideration of other growth in Hercules not included as part of the project (*i.e.*, outside the 24 parcels that make up the study area). Where appropriate, regional growth is also considered, as in Section IV.B, Transportation and Circulation.

As detailed in the body of the EIR, the Land Use and Circulation Elements Update would increase the intensity of urban uses in certain areas of Hercules, particularly the portion of the City west of I-80 and near San Pablo Bay, as well as areas along SR 4 and Bayberry Avenue. The additional daily trips would add to the cumulative increase in traffic along all major arterials in the region and along roadways within Hercules. Related increases in the emission of total organic gases, carbon monoxide, and nitrogen oxides would all locally add to cumulative increases in vehicular emissions. Projected development at buildout under the Land Use and Circulation Elements Update also would decrease the overall open space within the Hercules

City Limits, adversely affecting wildlife; add to the cumulative demand for hazardous waste disposal in Contra Costa County; and increase the amount of impervious surfaces within the City, thereby adding cumulatively to increased amounts of storm water runoff, which would lead to a degradation of water quality and could lead to increased flood hazards.

Projected growth resulting from implementation of the updated Land Use Element Update would also add cumulatively to the demand for police protection, fire suppression, school, and park and recreational services, and would add cumulatively to the demand for water supply. Generation of wastewater, storm water runoff (noted above), and solid waste by the new development would also add to cumulative increases in the demand for collection, treatment and disposal services for these wastes. Additional students would have a cumulative impact on school district facilities; in particular, elementary schools in the West Contra Costa Unified School District, which are currently overcrowded, would continue to have enrollment exceed capacity with implementation of the Land Use and Circulation Elements Update, and this impact would be aggravated by students generated by other approved and reasonably foreseeable development in Hercules.

E. IMPACTS FOUND NOT TO BE SIGNIFICANT

The following impacts were examined in the Initial Study and determined not to be significant and therefore are not analyzed further in this EIR:

- Creation of objectionable odors;
- Alteration of air movement, moisture or temperature, or change in climate;
- Reduction in acreage of any agricultural crop;
- Increase in the rate of use of any natural resource;
- Substantial depletion of any non-renewable natural resource;
- Possible interference with an emergency response plan;
- Alterations to waterborne, rail or air traffic;
- Alterations to electricity, natural gas, or communications utilities; and
- Effects on unique cultural values or restrictions on religious or sacred use of the area.

Some issues addressed in the Initial Study are nevertheless analyzed in the EIR, including increased water use and increased handling of hazardous materials.

VI. ALTERNATIVES

CEQA requires an evaluation of the comparative effects of a range of reasonable alternatives to the project which would feasibly attain most of the basic objectives of the project and reduce or eliminate significant effects (CEQA *Guidelines* Section 15126(d)). The range of alternatives is governed by the "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice (CEQA *Guidelines* Section 15126(d)(5)). Evaluation of a No-Project Alternative and identification of an environmentally superior alternative are required. The significant effects of the alternatives shall be discussed, but in less detail than the significant effects of the project (CEQA *Guidelines* Section 15126(d)(3)).

The following four alternative land use scenarios are considered (along with a so-called No Development Alternative, which is found to be infeasible).

- No-Project (Existing Land Use and Circulation Elements)
- Commercial Emphasis Alternative
- Residential Emphasis Alternative
- Reduced-Density Alternative

For the Commercial Emphasis and Residential Emphasis alternatives, the anticipated land uses would change (compared to the project) on portions of four parcels designated as Planned Commercial/Residential. Portions of each of the four parcels were assigned either commercial or residential use by the Community Panel. The proposed Land Use Element Update includes a specific mix of commercial and residential development on each parcel, and these alternatives would alter the mix on those portions of the parcels designated for either commercial or residential. (Land uses on Parcels 3, 4, and 13 would change with the Commercial Emphasis Alternative, while land uses on Parcels 4, 5, and 13 would change with the Residential Emphasis Alternative.) The result would be a change in the square footage of commercial development proposed and in the number of residential units proposed. For the Reduced-Density Alternative, the mix of land uses would not change, compared to the project, but the development densities would generally be less.

A. NO-PROJECT ALTERNATIVE

A.1. NO DEVELOPMENT ALTERNATIVE

A project-specific EIR typically analyzes a No Project Alternative that is the equivalent of a "No Development" alternative. That is, the No Project Alternative would result in disapproval or withdrawal of the project being analyzed, and the resulting impacts generally would be a maintenance of existing environmental conditions. For this EIR, which evaluates the impacts of buildout under the proposed updated Land Use and Circulation Elements of the *Hercules General Plan*, disapproval or withdrawal of the "project" would result in the existing Land Use and Circulation Elements remaining in effect, and the environmental impacts would be those of buildout under the existing Elements. A No Development alternative is not considered feasible, in that it would require that the City refuse to approve any development proposals on the 24 parcels included in the Study Area. Should such a No Development alternative come to pass, however, the resulting impacts would be maintenance of existing environmental conditions as described in the Setting portions of Chapter IV for those conditions that would otherwise change with development in Hercules. Certain impacts described in Chapter IV would occur whether or not additional development were to occur in Hercules. For example, even with no future development in Hercules, traffic conditions on I-80 and San Pablo Avenue would be congested due to traffic traveling through Hercules to and from other destinations; increased background traffic unrelated to Hercules development would generate increased levels of criteria pollutants.

A.2. EXISTING LAND USE AND CIRCULATION ELEMENTS

DESCRIPTION

The No Project Alternative would involve no change to the City's existing *General Plan* Land Use and Circulation Elements. Buildout would occur under the existing elements. This alternative would retain existing Industrial land use designations over most of the Study Area west of Interstate 80, including all of Parcels 1, 2, and 7 and most of Parcels 3 and 6; the remainder of those latter two parcels would be designated Industrial Commercial. Parcel 4 would retain designations for what were proposed junior and senior high school sites, and Parcel C would remain designated for an elementary school, although the West Contra Costa School District no longer proposes school construction on any of those sites. Other parcels west of I-80 would retain existing designations of Highway Commercial (9 and 10) and Neighborhood Commercial (5 and B). East of I-80, Parcel A would be designated for an elementary school, while other parcels would be designated Highway Commercial (11, 12, and I), Service

Commercial (8 and 13), Multi-Purpose (14, D, E, F, G, and J), and Town Center Commercial (H). Existing *General Plan* land use designations are shown in Figure IV.A.1 in Section IV.A, Land Use.

Under this alternative, there would be no residential uses and no mixed-use designations on any of the 24 Study Area parcels. As a result, population growth would be substantially less, and the year 2010 buildout population of Hercules would be approximately 23,600, compared to approximately 29,900 under the proposed project. Total employment in 2010 under this alternative would be about 7,000, compared to about 18,350 with the project.

IMPACTS

Under this alternative, Hercules would gain both population and jobs at a substantially slower rate than with the project. Total population at buildout (2010) would be about 20 percent less than with the project, and employment would be 60 percent less. Land use would be a lower intensity, particularly in the area west of I-80, where the Industrial designation would predominate. Large-scale industrial development might not be as feasible as the commercial development anticipated by the project, and this could result in a further diminution of employment. With less job growth than the proposed Land Use and Circulation Elements, this alternative would result in Hercules continuing to be a substantial exporter of employed residents (although the jobs/housing balance would improve, compared to current conditions).

Impacts related to the intensity of development generally would be less substantial with this alternative than with the project. Land use incompatibilities could still occur, however, particularly between potential industrial development west of I-80 and existing residential development. Less employment, particularly west of I-80, would diminish traffic impacts, compared to the project. In particular, traffic volumes would be less on San Pablo Avenue between Sycamore Avenue and John Muir Parkway (State Route 4), which under the project would carry a substantially greater volume of traffic than at present. However, background growth plus development under the No Project Alternative would result in Level of Service F at the San Pablo Avenue/John Muir Parkway and San Pablo Avenue/Sycamore Avenue intersections, as with the project. Other intersections in Hercules would operate at acceptable levels of service, with mitigation. Freeway operations on I-80 would be at LOS E/F to LOS F, as with the project. Resulting vehicle emissions and vehicle noise would be less with lower traffic volumes. Operational noise and emissions of criteria and non-criteria air pollutants could be somewhat greater than with the project due to the greater level of industrial development,

although there would be few sensitive receptors in proximity to most industrial lands. With less residential development than the proposed Land Use and Circulation Elements update, this alternative also would result in the creation of fewer new noise- and pollutant-sensitive land uses. However, emissions of criteria air pollutants would be a significant and unavoidable effect, as with the project. Greater energy for industrial use could be somewhat offset by less energy demand with fewer residential units, compared to the proposed Land Use and Circulation Elements Update. This alternative would not result in increases in population and employment beyond ABAG projections, and therefore would be consistent with the *1991 Clean Air Plan*; compared to the proposed project, which would not be in compliance, resulting in a significant unavoidable effect.

Hazardous materials impacts would be expected to be greater with this alternative, compared to the project, if industrial uses that were developed would employ hazardous materials in their production processes. Existing laws and regulations would largely govern the handling of those materials. Additional project-specific environmental review of industrial process development could be required once a project were proposed. As with the proposed project, this alternative would contribute to the cumulative hazardous waste disposal requirements in Contra Costa County - most likely to a greater degree, given the anticipated greater amount of industrial activity - and would result in a significant unavoidable effect.

Demand for public services would be less substantial than with the project because of the lower population and employment forecasts. As with the proposed Land Use and Circulation Elements Update, projected elementary school enrollment would exceed capacity, and school effects would be significant and unavoidable. If substantial industrial development were to occur, there could be an increased need for specialized fire fighting and/or other emergency response capabilities. Such demand would be expected to be mitigated through the development approval process in conjunction with the fire district. Less residential population, compared to the project, would lessen the need for City park and recreation facilities, and this impact would not be significant, in contrast to the project, which would result in significant effects on park services.

Impacts related to existing site-specific conditions, such as cultural resources, vegetation and wildlife, and geology, would be similar to those with the proposed project, as those impacts would be largely a function of whether a particular parcel were developed and would be less dependent on the nature of development. Similarly, impacts related to risk of flooding and to vehicle effects on runoff would relate to the placement of development on a site. However, fewer new residents would be exposed to a 100-year flood, compared to the proposed project.

Impacts related to potential contamination of surface waters due to point-source pollution could be greater than with the project due to the expected increase in industrial development with this alternative. Visual impacts could be greater than with the project, because industrial development could result in different types of structures than with residential or commercial development. Such impacts might be mitigated through use of building design and/or vegetative screening, but project-specific review could be required.

B. COMMERCIAL EMPHASIS ALTERNATIVE

DESCRIPTION

The Commercial Emphasis Alternative would change (compared to the project) the anticipated land uses of portions of three parcels, resulting in an increase in the square footage of commercial development proposed and a decrease in the number of residential units proposed. This alternative would result in approximately 5.75 million square feet of commercial development, compared to about 5.01 million square feet with the proposed Land Use Element Update (about 14.8 percent more). This alternative would result in about 1,870 multi-family residential units, compared to about 3,815 with the proposed Land Use Element Update (about 51 percent fewer).

The parcels that would have different land uses would be:

- Parcel 3 (Gelsar) - 45.0 acres of Planned Commercial/Residential proposed for up to 1,350 dwelling units under the Land Use Element Update would instead accommodate up to 588,060 sq. ft. of commercial development.
- Parcel 4 (Hercules Inc.) - 6.5 acres of Planned Commercial/Residential proposed for up to 42,471 sq. ft. of commercial development and up to 98 dwelling units under the Land Use Element Update would instead accommodate up to 84,942 sq. ft. of commercial development.
- Parcel 13 (Sycamore) - 25.1 acres of Planned Commercial/Residential proposed for up to 54,880 sq. ft. of commercial development and up to 502 dwelling units under the Land Use Element Update would instead accommodate up to 164,657 sq. ft. of commercial development.

Land use designations and anticipated land uses would remain the same for all other parcels, and the proposed Circulation Element Update would not be altered. Table VI.1 is a summary of each parcel, the proposed land use designation, and maximum development scenario that could occur, assuming commercial development at typical FARs.

TABLE VI.1: COMMERCIAL EMPHASIS ALTERNATIVE:
MAXIMUM DEVELOPMENT POTENTIAL

Parcel	Common Name	Preferred Designation Use	Acres	Maximum Sq. Ft.	Intensity/Density		
					FAR	U/AC	Units
1	HPI Site	Historic Town Center	8.6	85,000		&	25
		Planned Office/R&D	21.1	459,558	0.5		
		General Commercial	3.8	82,764	0.5		
		Planned Office/R&D	15.3	199,940	0.3		
		Planned Office/R&D/Res	3.0	39,204	0.3	36	108
		Multi-Family, Med Dens	22.3			30	669
		Open Space/Creek Corridor	32.0	n/a	n/a	n/a	n/a
		Total Acreage	106.1				
2	Hercules Point	Waterfront Commercial	6.0	52,272	0.2		
		Undeveloped Remainder	9.0	n/a	n/a	n/a	n/a
		Total Acreage	15.0				
3	Gelsar Site	General Commercial	14.1	153,549	0.25		
		Planned Commercial/Res	45.0	588,060	0.3		
		Planned Office/R&D	18.5	241,758	0.3		
		Open Space/Creek Corridor	26.4	n/a	n/a	n/a	n/a
		Total Acreage	104.0				
4	Hercules Inc Site	Multi-Family, Med Dens	24.5			30	735
		Planned Commercial/Res	6.5	84,942	0.3		
		General Commercial	10.5	137,214	0.3		
		Total Acreage	41.5				
5	MRB Site	Multi-Family, Med Dens	4.6			30	138
		Planned Com/Res	1.0	13,068	0.3		
		Total Acreage	5.6				
6	North Shore Business Park	Planned Off/R&D	60.9	795,841	0.3		
		General Commercial	15.5	202,554	0.3		
		Planned Off/R&D	67.5	900,000	0.3		
		Total Acreage	143.9				
7	ANR Site	Planned Cmrc./Industrial	41.6	543,629	0.3		
		Planned Cmrc./Industrial	20.8	362,419	0.4		
		Total Acreage	62.4				
8	Hercules Square	Community Commercial	2.9	31,581	0.25		
9	ORB Site	General Commercial	3.5	20,000	0.15	plus gas station	
10	BART Site	Public/Semi-Public	6.6		Park & Ride		
11	I-80 Loop Site	General Commercial	6.3	82,328	0.3		
12	TABCO Site	General Commercial	8.9	116,305	0.3		
13	Sycamore Site	Planned Com/Res	25.1	164,657	0.15		
14	Five Giants	General Commercial	7.0	91,476	0.3		
SUBTOTAL			538.8	5,448,119			1,675

TABLE VI.1: COMMERCIAL EMPHASIS ALTERNATIVE:
MAXIMUM DEVELOPMENT POTENTIAL (Continued)

Parcel	Common Name	Preferred Designation Use	Acres	Maximum Sq. Ft.	Intensity/Density		
					FAR	U/AC	Units
A	Church of Nazarene	Multi-Family, Low Dens	5.0			10	50
B	McLeod	Multi-Family, Low Dens	7.4			10	74
C	Citation	Multi-Family, Low Dens	5.6			12	67
D	Carone - 1	General Commercial	2.0	26,136	0.3		
E	Carone - 2	General Commercial	1.8	23,522	0.3		
F	Carone - Sycamore	Community Commercial	2.6	33,977	0.3		
G	Old ATSF	Community Commercial	1.7	22,216	0.3		
H	Creeside	Community Commercial	25.25	160,455	var.		
I	Willow Center	General Commercial	3.4	31,000	var.		
J	Church of Christ	General Commercial	7.0	church			
SUBTOTAL			61.8	297,306			191
TOTAL			600.6	5,745,425			1,866

Note: Maximum development figures for properties that are partially developed are "gross" and include existing built space; figures for "new" space may be derived by subtracting existing space from these figures.

Under this alternative, there would be about 1,950 fewer dwelling units compared to the proposed project, and population growth therefore would be somewhat less. The year 2010 buildout population of Hercules would be approximately 24,300, compared to approximately 29,900 under the proposed project. Total employment in 2010 under this alternative would be about 20,000, compared to about 18,350 with the project.

IMPACTS

Effects of this alternative would be similar to those of the proposed Land Use and Circulation Elements Update, because the overall level of development would be similar, although certain parcels would contain more commercial and less residential development. Under this alternative, of those Study Area parcels west of San Pablo Avenue, Parcels 1, 4, and 5 would include residential development. There would be no residential development on Parcel 3 (as there would with the proposed Land Use Element Update), and residential development on Parcels 4 and 5 would be less than with the proposed project. (There would be commercial development on all parcels west of San Pablo Avenue (except Parcel 10, the BART site), as with the proposed project. No residential development would occur on Parcel 13, along Sycamore Avenue east of the Civic Center, as it would with the proposed Land Use Element Update.

Impacts related to the intensity of development generally would be similar with this alternative compared to the project. Land use compatibility would be similar to that with the proposed project, but the decreased residential development, compared to the project, would reduce somewhat the potential for sensitive receptors west of I-80 to be exposed to air quality effects, noise, and light and glare generated by commercial land uses. Increased employment compared to the proposed Land Use and Circulation Elements Update would result in the City being a greater net importer of workers than with the proposed project, with a jobs/housing ratio of about 1.61. Greater employment, particularly west of I-80 and along Sycamore Avenue, would increase related traffic impacts, compared to the project, although that increase would be partially offset by a smaller number of residential units. Daily and p.m. peak-hour trip generation would be about 9 percent greater than with the project. Background growth plus development under the Commercial Emphasis Alternative would result in Level of Service F at the San Pablo Avenue/John Muir Parkway and San Pablo Avenue/Sycamore Avenue intersections, as with the project. Other intersections in Hercules would operate at acceptable levels of service, with mitigation. Freeway operations on I-80 would be at LOS E/F to LOS F, as with the project. Resulting vehicle emissions and vehicle noise would increase. Operational noise and, potentially, air pollutants emitted by stationary sources, would be incrementally greater than with the proposed project due to the greater amount of commercial space. Emissions of criteria air pollutants and lack of compliance with the *1991 Clean Air Plan* would be significant unavoidable effects, as they would with the proposed Land Use and Circulation Elements Update. Energy impacts could increase incrementally, compared to the project, depending on the nature of commercial development; as noted, the overall intensity of development would be comparable to that of the project.

Demand for public services would be comparable to the demand that would be anticipated with the proposed Land Use and Circulation Elements Update because, despite the lower total population, employment would increase, relative to the proposed project. School impacts would be significant and unavoidable, as with the project. Less residential population, compared to the project, would lessen the need for City park and recreation facilities, and this impact would not be significant, in contrast to the project, which would result in significant effects on park services.

Impacts related to existing site-specific conditions, such as vegetation and wildlife and geology, would be similar to those with the proposed project, as those impacts would be largely a function of whether a particular parcel were developed and would be less dependent on the nature of development. As this alternative would replace some multi-family residential development with commercial development, lot coverage for buildings and parking areas, plus landscaping, would be expected to be similar. Similarly, impacts related to risk of flooding and to vehicle effects on runoff would relate to the placement of development on a site; as with the No Project Alternative, the population potentially exposed to the 100-year flood would be smaller than with the project. Impacts related to hazardous materials and to potential contamination of surface waters due to point-source pollution could be marginally greater than with the project due to the greater commercial development with this alternative; actual effects would depend on the nature of the commercial development approved. Existing laws and regulations would largely govern the handling of hazardous materials. This alternative would expose fewer residents to hazards, although use of hazardous materials and generation of hazardous waste as a result of commercial uses could increase slightly. As with the proposed project, this alternative would contribute to the cumulative hazardous waste disposal requirements in Contra Costa County, and would result in a significant unavoidable effect.

Impacts related to cultural resources (historic buildings and archaeological resources) would also largely be a function of the location, and not the nature, of development, and would be similar to those of the proposed Land Use and Circulation Elements Update.

Visual impacts could be greater than with the project, because commercial development would be expected to result in larger structures than with residential development. This would particularly be true on Parcel 3, where the portion that abuts much of the south side of the Refugio Creek open space corridor would be the site of commercial rather than residential development. Such impacts might be mitigated through use of building design and/or vegetative screening, but project-specific review could be required.

C. RESIDENTIAL EMPHASIS ALTERNATIVE

DESCRIPTION

The Residential Emphasis Alternative would change (compared to the project) the anticipated land uses of portions of three parcels, resulting in a decrease in the square footage of commercial development proposed and an increase in the number of residential units proposed. This alternative would result in approximately 4.89 million square feet of commercial development, compared to about 5.01 million square feet with the proposed Land Use Element Update (about two percent less). This alternative would result in about 4,200 multi-family residential units, compared to about 3,815 with the proposed Land Use Element Update (about 10 percent more).

The parcels that would have different land uses would be:

- Parcel 4 (Hercules Inc.) - 6.5 acres of Planned Commercial/Residential proposed for up to 42,471 sq. ft. of commercial development and up to 98 dwelling units under the Land Use Element Update would instead accommodate up to 195 dwelling units.
- Parcel 5 (MRB) - one acre of Planned Commercial/Residential proposed for up to 13,068 sq. ft. of commercial development under the Land Use Element Update would instead accommodate up to 30 dwelling units.
- Parcel 13 (Sycamore) - 25.1 acres of Planned Commercial/Residential proposed for up to 54,880 sq. ft. of commercial development and up to 502 dwelling units under the Land Use Element Update would instead accommodate up to 753 dwelling units.

Land use designations and anticipated land uses would remain the same for all other parcels, and the proposed Circulation Element Update would not be altered. Table VI.2 is a summary of each parcel, the proposed land use designation, and maximum development scenario that could occur, assuming commercial development at typical FARs.

Under this alternative, there would be about 1,950 fewer dwelling units compared to the proposed project, and population growth therefore would be somewhat less. The year 2010 buildout population of Hercules would be approximately 31,000, compared to approximately 29,900 under the proposed project. Total employment in 2010 under this alternative would be about 18,100, compared to about 18,350 with the project.

TABLE VI.2: RESIDENTIAL EMPHASIS ALTERNATIVE:
MAXIMUM DEVELOPMENT POTENTIAL

Parcel	Common Name	Preferred Designation Use	Acres	Maximum Sq. Ft.	Intensity/Density		
					FAR	U/AC	Units
1	HPI Site	Historic Town Center	8.6	85,000	&		25
		Planned Office/R&D	21.1	459,558	0.5		
		General Commercial	3.8	82,764	0.5		
		Planned Office/R&D	15.3	199,940	0.3		
		Planned Office/R&D/Res	3.0	39,204	0.3	36	108
		Multi-Family, Med Dens	22.3			30	669
		Open Space/Creek Corridor	32.0	n/a	n/a	n/a	n/a
		Total Acreage	106.1				
2	Hercules Point	Waterfront Commercial	6.0	52,272	0.2		
		Undeveloped Remainder	9.0	n/a	n/a	n/a	n/a
		Total Acreage	15.0				
3	Gelsar Site	General Commercial	14.1	153,549	0.25		
		Planned Commercial/Res	45.0			30	1350
		Planned Office/R&D	18.5	241,758	0.3		
		Open Space/Creek Corridor	26.4	n/a	n/a	n/a	n/a
		Total Acreage	104.0				
4	Hercules Inc Site	Multi-Family, Med Dens	24.5			30	735
		Planned Commercial/Res	6.5			30	195
		General Commercial	10.5	137,214	0.3		
		Total Acreage	41.5				
5	MRB Site	Multi-Family, Med Dens	4.6			30	138
		Planned Com/Res	1.0			30	30
		Total Acreage	5.6				
6	North Shore Business Park	Planned Off/R&D	60.9	795,841	0.3		
		General Commercial	15.5	202,554	0.3		
		Planned Off/R&D	67.5	900,000	0.3		
		Total Acreage	143.9				
7	ANR Site	Planned Cmrc./Industrial	41.6	543,629	0.3		
		Planned Cmrc./Industrial	20.8	362,419	0.4		
		Total Acreage	62.4				
8	Hercules Square	Community Commercial	2.9	31,581	0.25		
9	ORB Site	General Commercial	3.5	20,000	0.15	plus gas station	
10	BART Site	Public/Semi-Public	6.6	Park & Ride			
11	I-80 Loop Site	General Commercial	6.3	82,328	0.3		
12	TABCO Site	General Commercial	8.9	116,305	0.3		
13	Sycamore Site	Planned Com/Res	25.1			30	753
14	Five Giants	General Commercial	7.0	91,476	0.3		
SUBTOTAL			538.8	4,597,392			4,003

TABLE VI.2: RESIDENTIAL EMPHASIS ALTERNATIVE:
MAXIMUM DEVELOPMENT POTENTIAL (Continued)

Parcel	Common Name	Preferred Designation Use	Acres	Maximum Sq. Ft.	Intensity/Density		
					FAR	U/AC	Units
A	Church of Nazarene	Multi-Family, Low Dens	5.0			10	50
B	McLeod	Multi-Family, Low Dens	7.4			10	74
C	Citation	Multi-Family, Low Dens	5.6			12	67
D	Carone - 1	General Commercial	2.0	26,136	0.3		
E	Carone - 2	General Commercial	1.8	23,522	0.3		
F	Carone - Sycamore	Community Commercial	2.6	33,977	0.3		
G	Old ATSF	Community Commercial	1.7	22,216	0.3		
H	Creekside	Community Commercial	25.25	160,455	var.		
I	Willow Center	General Commercial	3.4	31,000	var.		
J	Church of Christ	General Commercial	7.0	church			
SUBTOTAL			61.8	297,306			191
TOTAL			600.6	4,894,698			4,194

Note: Maximum development figures for properties that are partially developed are "gross" and include existing built space; figures for "new" space may be derived by subtracting existing space from these figures.

IMPACTS

Effects of this alternative would be similar to those of the proposed Land Use and Circulation Elements Update, because the overall level of development would be similar, although certain parcels would contain less commercial and more residential development. As noted above, the decrease in commercial development, relative to the proposed Land Use and Circulation Elements Update, would be about two percent. Under this alternative, of those Study Area

parcels west of San Pablo Avenue, Parcels 1, 3, 4, and 5 would include residential development. There would be no commercial development on Parcel 5 (as there would with the proposed Land Use Element Update), and commercial development on Parcel 4 would be less than with the proposed project. (There would be commercial development on all parcels west of San Pablo Avenue except for Parcel 5 and Parcel 10 [BART site].) No commercial development would occur on Parcel 13, along Sycamore Avenue east of the Civic Center, as it would with the proposed Land Use Element Update.

Impacts related to the intensity of development generally would be similar with this alternative compared to the project. Issues related to land use compatibility would be virtually the same as with the proposed project, with the only sizable area where residential development would replace commercial development being Parcel 13. There, residential development could be affected by the adjacent Santa Fe Railroad tracks and by commercial uses north of the tracks. Decreased employment compared to the proposed Land Use and Circulation Elements Update would result in the City remaining a slight exporter of employed residents: this alternative would achieve the closest to a theoretical jobs/housing balance of all alternatives examined, with a jobs/housing ratio of approximately 1.14. Less employment, particularly west of I-80 and along Sycamore Avenue, would decrease related traffic impacts, compared to the project; that decrease would be partially offset by a greater amount of residential development, but daily and p.m. peak-hour trip generation would be about 5 percent less than with the project. Background growth plus development under the Commercial Emphasis Alternative would result in Level of Service F at the San Pablo Avenue/John Muir Parkway and San Pablo Avenue/Sycamore Avenue intersections, as with the project. Other intersections in Hercules would operate at acceptable levels of service, with mitigation. Freeway operations on I-80 would be at LOS E/F to LOS F, as with the project. Resulting vehicle emissions and vehicle noise would decrease incrementally. Operational noise and stationary source emissions would be incrementally less than with the proposed project due to the relatively greater amount of residential versus commercial land use. Emissions of criteria air pollutants and lack of compliance with the *1991 Clean Air Plan* would be significant unavoidable effects, as they would with the proposed Land Use and Circulation Elements Update. Energy impacts would be similar to those of the project because of the similar overall intensity of development.

Demand for public services would be comparable to the demand that would be anticipated with the proposed Land Use and Circulation Elements Update because, despite the greater total population, employment would decrease, relative to the proposed project. Impacts on school enrollment would be significant and unavoidable, as with the proposed project, and would be

somewhat greater than with the project. The greater residential population, compared to the project, would incrementally increase the need for City park and recreation facilities; this impact would be significant and unavoidable, as with the project.

Impacts related to existing site-specific conditions, such as vegetation and wildlife and geology, would be similar to those with the proposed project, as those impacts would be largely a function of whether a particular parcel were developed and would be less dependent on the nature of development. Similarly, impacts related to risk of flooding and to vehicle effects on runoff would relate to the placement of development on a site; the population potentially exposed to the 100-year flood would be slightly larger than with the project. Impacts related to hazardous materials and to potential contamination of surface waters due to point-source pollution could be marginally less substantial than with the project due to the lesser commercial development with this alternative. Existing laws and regulations would largely govern the handling of hazardous materials. This alternative could incrementally increase the number of persons exposed to hazards; with a similar level of commercial activity, it would be expected to generate about the same amount of hazardous materials and waste as would the project. As with the proposed project, this alternative would contribute to the cumulative hazardous waste disposal requirements in Contra Costa County, and would result in a significant unavoidable effect.

Impacts related to cultural resources (historic buildings and archaeological resources) would also largely be a function of the location, and not the nature, of development, and would be similar to those of the proposed Land Use and Circulation Elements Update.

Visual impacts would be similar to those of the proposed Land Use and Circulation Elements Update, and would be expected to be less than with the Commercial Emphasis Alternative because the amount of residential development would be in the same locations as with the project.

D. REDUCED-DENSITY ALTERNATIVE

DESCRIPTION

The Reduced-Density Alternative represents a variety of scenarios that could result in less intensive development than that envisioned by the project. For purposes of analysis, the Reduced-Density Alternative assumes the same land use designations for all parcels as does the project, and assumes that development would occur at a density that reflects the low end of the

density range for each designation. That is, where the project would include, for example, commercial development in the General Commercial designation at a floor-area ratio (FAR)¹ of 0.3, this alternative postulates development in the General Commercial designation at a FAR of 0.2. Similarly, where the project would include multi-family, medium-density residential development at 30 units per acre, this alternative postulates residential development at 12 units per acre.

While the Reduced-Density Alternative could be achieved through across-the-board reductions in permitted development density, based on the assumptions outlined above, it could also represent a substantially greater reduction in permitted development on certain parcels (such as parcels containing potential wetlands or important visual features), compared to the project, while retaining the same level of development on other parcels as would the project. For example, this alternative could encompass the effects of half a dozen key parcels being developed at a FAR that is below the low end of the density range specified in the draft Land Use Element Update, while the remaining 18 parcels were developed at the FAR currently specified in the draft Land Use Element Update.²

For purposes of analysis, the Reduced-Density alternative would result in approximately 3.78 million square feet of commercial development, compared to about 5.01 million square feet with the proposed Land Use Element Update (about 24.4 percent less). This alternative would result in about 1,572 multi-family residential units, compared to about 3,815 with the proposed Land Use Element Update (about 59 percent fewer).

Under this alternative, there would be about 2,240 fewer dwelling units compared to the proposed project, and population growth therefore would be less. The year 2010 buildout population of Hercules would be approximately 23,400, compared to approximately 29,900 under the proposed project. Total employment in 2010 under this alternative would be about 14,700, compared to about 18,350 with the project.

¹ FAR is calculated by dividing the gross floor area of a building by the area of the lot in which it is built.

² While limiting the FAR on a particular parcel would result in a reduced building "footprint" (area on the ground occupied by building[s]) other things being equal, a reduced footprint could also be achieved without a corresponding reduction in FAR by permitting additional building height. For example, a single-story building on a particular site has the same FAR as a two-story building that covers half of the same site. Changes in FAR generally result in changes related to intensity of development (for example, traffic congestion, air quality, traffic noise, population, demand for public services), while changes in building footprint generally result in changes in site-specific impacts (for example, effects on wetlands and other natural communities, geologic and hydrologic effects, and some visual effects). If building footprint were reduced to avoid effects on biological resources but FAR were to remain the same as proposed with the project, effects related to intensity of development, such as traffic conditions, would be generally the same as with the project. At a program level of analysis, as is undertaken in this EIR, effects related to intensity of development are more clearly identifiable, since site-specific effects must, in general, be more carefully analyzed when specific development proposals are made.

IMPACTS

Impacts related to the intensity of development generally would be less substantial with this alternative than with the proposed Land Use and Circulation Elements Update; that is, traffic, air quality, traffic-related noise, and demand for public services, including schools, would be reduced. Daily and p.m. peak-hour trip generation would be about 22 percent less than with the project. Despite the reduced trip generation, background growth plus development under the Reduced-Density Alternative would result in Level of Service F at the San Pablo Avenue/John Muir Parkway and San Pablo Avenue/Sycamore Avenue intersections, as with the project. This is because so much of the traffic on San Pablo Avenue is a result of drivers who use San Pablo Avenue as an alternative to I-80 (see Section IV.B., Transportation and Circulation). Other intersections in Hercules would operate at acceptable levels of service, with mitigation. Freeway operations on I-80 would be at LOS E/F to LOS F, as with the project, again largely due to traffic not generated in Hercules. As noted above, vehicle emissions and vehicle noise would decrease, compared to the project. Operational noise and, potentially, air pollutants emitted by stationary sources, would be incrementally less than with the proposed project due to the lesser amount of commercial space. Because, even with reduced development, this alternative would result in a substantial number of vehicle trips, emissions of criteria air pollutants would be a significant unavoidable effect, as with the proposed Land Use and Circulation Elements Update. Population would be comparable to that with the existing Land Use Element (No Project Alternative), but employment would be substantially greater (although less than with the proposed project), and this alternative probably would not be in compliance with the *1991 Clean Air Plan*; this would be a significant, unavoidable effect, as with the project.

Land use compatibility would be similar to that with the proposed project, but the decreased residential development, compared to the project, would reduce somewhat the potential for sensitive receptors west of I-80 to be exposed to air quality effects, noise, and light and glare generated by commercial land uses. Because the reduction in employment compared to the proposed Land Use and Circulation Elements Update would be similar to the reduction in employed residents, the jobs/housing ratio of about 1.23 would be similar to that expected with the project, meaning the City would be a net importer of workers. Energy impacts could decrease incrementally, compared to the project, depending on the nature of commercial development.

Demand for public services would be less than the demand that would be anticipated with the proposed Land Use and Circulation Elements Update because of reduced population and

employment. Because of the reduced population, compared to the project, school impacts would be less than with the project. However, because elementary school capacity would not be sufficient to accommodate demand and this alternative would not result in sufficient fees to construct a new school, this impact would be significant and unavoidable, as with the project. Less residential population, compared to the project, would lessen the need for City park and recreation facilities, and this impact would not be significant, in contrast to the project, which would result in significant effects on park services.

Impacts related to existing site-specific conditions, such as vegetation and wildlife and geology, could be similar to those with the proposed project, depending on whether specific parcels were designated for substantially less density. As those impacts would be largely a function of whether a particular parcel were developed and would be less dependent on the nature of development, a uniform reduction in permitted density would not itself result in substantially different impacts compared to the project. If development on more environmentally sensitive parcels were more highly restricted, this alternative could have less impact than the project on those parcels. Impacts related to risk of flooding and to vehicle effects on runoff would relate to the placement of development on a site; as with the No Project Alternative, the population potentially exposed to the 100-year flood would be smaller than with the project. Impacts related to hazardous materials and to potential contamination of surface waters due to point-source pollution would be somewhat less than with the project due to the lesser commercial development with this alternative; actual effects would depend on the nature of the commercial development approved. Existing laws and regulations would largely govern the handling of hazardous materials. This alternative would expose fewer residents to hazards. As with the proposed project, this alternative would contribute to the cumulative hazardous waste disposal requirements in Contra Costa County, and would result in a significant unavoidable effect.

Impacts related to cultural resources (historic buildings and archaeological resources) would also largely be a function of the location, and not the nature, of development, and would be similar to or less than those of the proposed Land Use and Circulation Elements Update.

Visual impacts could be less substantial than with the project due to the smaller amount of development. This would be particularly true if certain visually sensitive parcels were designated for substantially less development. Such impacts might be mitigated through use of building design and/or vegetative screening, but project-specific review could be required.

Because impacts of this alternative related to the intensity of development generally would be less substantial than with the proposed project, and because this alternative would not have significant, unavoidable effects on park and recreation services or on air quality relative to the 1991 *Clean Air Plan*, in contrast to the proposed project, the Reduced Density Alternative is considered the environmentally superior alternative. However, this alternative could also result in less financial benefit for the City.

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VIII. APPENDICES

- A. INITIAL STUDY AND NOTICE OF PREPARATION
- B. RESPONSES TO NOTICE OF PREPARATION
- C. VEGETATION AND WILDLIFE
- D. HAZARDOUS MATERIALS
- E. FISCAL ANALYSIS
- F. DRAFT LAND USE ELEMENT
- G. DRAFT CIRCULATION ELEMENT
- H. DRAFT DYNAMITE REDEVELOPMENT PLAN AMENDMENTS

APPENDIX A: INITIAL STUDY AND NOTICE OF PREPARATION

**NOTICE OF PREPARATION
CIRCULATION AND LAND USE ELEMENTS
UPDATE EIR OF THE HERCULES GENERAL PLAN,
AND RELATED LAND USE AMENDMENTS TO THE HERCULES
REDEVELOPMENT PROJECT AREA**

TO: All interested agencies and parties.

FROM: Gary Hembree
Community and Business Development Director
City of Hercules
111 Civic Drive
Hercules, California 94547

SUBJECT: Notice of Preparation of an Environmental Impact Report

The City of Hercules will be the Lead Agency for preparation of an Environmental Impact Report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the probable environmental effects are contained in the attached materials. A copy of the Initial Study is attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to Gary Hembree at the address shown above. We will need the name for a contact person in your agency.

Project Title: Land Use and Circulation Elements Update, Hercules General Plan, and Related Land Use Amendments to the Hercules Redevelopment Project Area

Project Applicant: City of Hercules

Date: February 22, 1993

Signature _____

Title _____

Telephone _____

Reference: California Administrative Code, Title 14, Sections 15082(a), 15103, 15375.

I. INTRODUCTION

The City of Hercules is located on the southeast shore of San Pablo Bay and encompasses about seven square miles. Figure 1 shows the location of Hercules in a regional context.

The purpose of this Initial Study is to determine the need for and scope of environmental review for the Update to the Land Use and Circulation Elements of the Hercules General Plan. The City of Hercules proposes an update to its Land Use Element based on input and recommendations from a local citizens "Community Panel." The proposed project includes land use designations for 14 properties, for which existing environmental conditions were previously evaluated in the *Hercules Master Environmental Assessment* (MEA). The project also includes land use designations for 10 smaller properties in the vicinity of Interstate-80, State Route 4 and San Pablo Avenue that were not discussed in the MEA. Some of the properties proposed for designation are currently developed with the recommended land uses. Redesignation of land uses for the 24 parcels could result in up to 5.9 million square feet of commercial and industrial uses, and approximately 4,100 new multi-family residences. Figure 2 shows the 24 properties that would be redesignated.

The Circulation Element would be updated at the same time as the Land Use Element, creating an opportunity for a combined environmental review that will lead to a more useful EIR. Based on full build-out of the proposed land uses, the Circulation Element would recommend transportation improvements that generally would not lead to substantial changes in the existing street system, with the exception of two areas. Streets would be needed to serve the undeveloped properties west of San Pablo Avenue (south of the North Shore Business Park). Existing streets in the same area would be analyzed for general street alignments and cross-sections. Also, plans for upgrading State Route 4 to freeway standards will be examined.

A. LAND USE ELEMENT UPDATE

In 1991, the City of Hercules undertook the preparation of an MEA for the major undeveloped land areas remaining within the City limits. The primary purpose of the MEA was to provide a basis for updating the City's General Plan Land Use Element. The MEA identified existing environmental conditions and constraints to future development. The MEA study area consisted of 14 separate and discontinuous parcels of land ranging in size from three to 67 acres. Constraints to development were identified for each parcel under the disciplines of geology, traffic and circulation, biological and wetland resources, air quality, noise, energy, and public services.

Following preparation of the MEA, the City formed a City Council-Planning Commission subcommittee in 1992, the "Community Panel." The goal of the Community Panel was to recommend a concept for the Land Use Element Update. The Community Panel identified three land use scenarios, and recommended a preliminary Land Use Concept for further discussion. The recommended Land Use Concept would: allow for physical "buildout" of the city; accommodate current land use trends for affordable housing and mixed public-private use; extend the linear park along Refugio Creek westward towards San Pablo Bay; and designate land near the SR4/I-80 interchange and along SR4 as general commercial use. The Land Use Concept assigned land use designations to each of the 14 parcels evaluated in the MEA. When developing the proposed land use designations, the City considered the constraints identified in the MEA.

Since completion of the recommended Land Use Concept, the City has also proposed land use redesignations for an additional ten parcels. Most of the ten parcels range in size from 1.8 to 7.0 acres; the largest is about 25.3 acres.

The types of land uses that are proposed are noted below, by land use designation category. The parcels to which the proposed land uses would apply are noted in parentheses (the parcel numbers/letters correspond to Figure 2).

General Commercial and Industrial. (Parcels 1, 3, 4, 6, 9, 11, 12, 14, D, E, T, and J) This designation would allow general commercial and industrial developments. Commercial uses may be public, semi-public and private-non-profit, if compatible with adjacent uses. Banks, retail businesses, and other professional uses would exist in strip commercial centers or free-standing buildings. The General Commercial floor-area-ratio (FAR, the gross floor area of a building divided by the lot area) would range from 0.20 to 1.00. A typical FAR for this category is 0.30. Industrial uses would permit storage areas, automobile repair services, corporation yards and utility substations.

Historic Town Center. (Parcel 1) This designation identifies the former Hercules Powder Company and adjacent historic residential uses. The purpose of this designation is to allow reuse of existing Victorian-type homes and structures, and to permit new structures that maintain the existing architectural character of the area. Uses include professional, administrative, personal services, restaurants and coffee shops, and businesses that would provide waterfront services. Multi-family units would be allowed under this designation, with up to 17 units per acre and no more than 40 units. The FAR for the non-residential category shall range from 0.15 to 0.40. Typical FAR for this category is 0.20.

Waterfront Commercial. (Parcel 2) This designation would allow restaurants, food and beverage shops, recreational equipment sales, bait-and-tackle shops and visitor-oriented uses. Private structures would be able to have an FAR ranging from 0.15 to 0.30, with a typical FAR of 0.20.

Community Commercial. (Parcels 8, G and H) Retail, office and service uses that would serve residents and employees in the City would be permitted under this designation. The FAR for this category would range from 0.20 to 1.00, with a typical FAR of 0.30.

Recreational Commercial. (Parcel 1) Properties with this designation would be developed and used for recreational activities that are conducted as a business, either for profit or non-profit. Such uses could include a golf course, driving range, batting cages, athletic clubs, and cafes and bars with an FAR that would range from 0.20 to .40. A typical FAR for this category would be 0.30.

Commercial/Public. (Parcel 10) This designation identifies a property owned by the Bay Area Rapid Transit District (BART), and would be developed to serve as a transfer hub for BART Express, WestCAT, and other bus operators. The FAR for this category shall not exceed that allowed in "General Commercial."

Planned Office/R&D. (Parcels 1 and 6) Uses under this designation would include research and development, manufacturing, administrative offices, and warehouse and distribution centers. The FAR would not exceed .30.

Planned Commercial/Industrial. (Parcel 7) This designation was created to utilize the high visibility of SR 4 and Interstate 80 for uses such as retail, service office, research and development, and businesses with an FAR that ranges from 0.25 to 0.50. A typical FAR under this category would be 0.30.

Planned Commercial/Residential. (Parcels 3, 4, 5 and 13) Properties with this designation would accommodate both commercial and residential uses in a mixed-use development. Commercial development could include a shopping mall, a traditional downtown shopping street, professional and service offices. Residential uses that would be permitted include multi-family residences, generally above or behind commercial uses and would not exceed 30 units per acre.

Industrial/Residential. (Parcel 1) Combining work space and residential space in the same structure is the intent of this designation. Start-up companies, craft workshops or other businesses that could provide living space above or behind the business would be permitted under this designation. The work-space portion of the structures would not exceed 0.50, and residential density shall not exceed 25 units per acre.

Multi-Family Low Density. (Parcels A, B and C) Single- and multi-family residences, townhouses, duets, condominiums or apartments would be typical uses under this designation. The allowable density would be 7 to 10 units per acre.

Multi-Family Medium Density. (Parcels 1, 4 and 5) Properties with this designation are intended to provide areas for multi-family residences (primarily condominiums, apartments and townhouses) on five-acre or larger parcels. Higher density in these areas is expected to provide additional affordable housing. The allowable density would be 10 to 30 units per acre.

Multi-Family High Density. Since publication of the MEA, two parcels have been built with high-density residential development that would conform to the proposed designation, when adopted.

B. CIRCULATION ELEMENT UPDATE

The MEA also addressed the traffic and circulation constraints associated with each of the 14 parcels and recommended several improvements to Hercules' existing road network. Transportation-related parcel-specific improvements were not suggested because individual development plans were not proposed.

Although the Community Panel did not suggest capital improvements to the existing roadway system, they did make general recommendations. These recommendations were to address traffic conditions in 2010 should the I-80/SR 4 interchange not be built; assess traffic congestion concerns which have become evident since 1972; and combine the Updates to the Circulation and Land Use Elements into a single document. Improvements to SR 4 are now a scheduled capital improvement.

C. CEQA PROVISIONS FOR MASTER ENVIRONMENTAL ASSESSMENTS (MEAs)

CEQA Guidelines state that a public agency may prepare a Master Environmental Assessment to provide information which may be used in EIRs. However, CEQA Guidelines do not specify the content, format, nor the procedures to be used to develop MEAs.

The Guidelines do, however, describe several uses for MEAs: to identify environmental characteristics of an area, to be used as a central source of information for preparation of an EIR, and to help focus initial studies and EIRs (CEQA Guidelines Section 15169(d)(1-7)). This is the intention of the City of Hercules. A data base gleaned from in-house research, previous EIRs, and a comprehensive study of the subject area were used to write the MEA.

The MEA will serve as the basis for the Setting section of the EIR on the updated Land Use and Circulation Elements of the General Plan, and will be incorporated by reference into that EIR and future environmental documents as applicable.

II. ENVIRONMENTAL IMPACTS

A. EFFECTS FOUND TO BE POTENTIALLY SIGNIFICANT

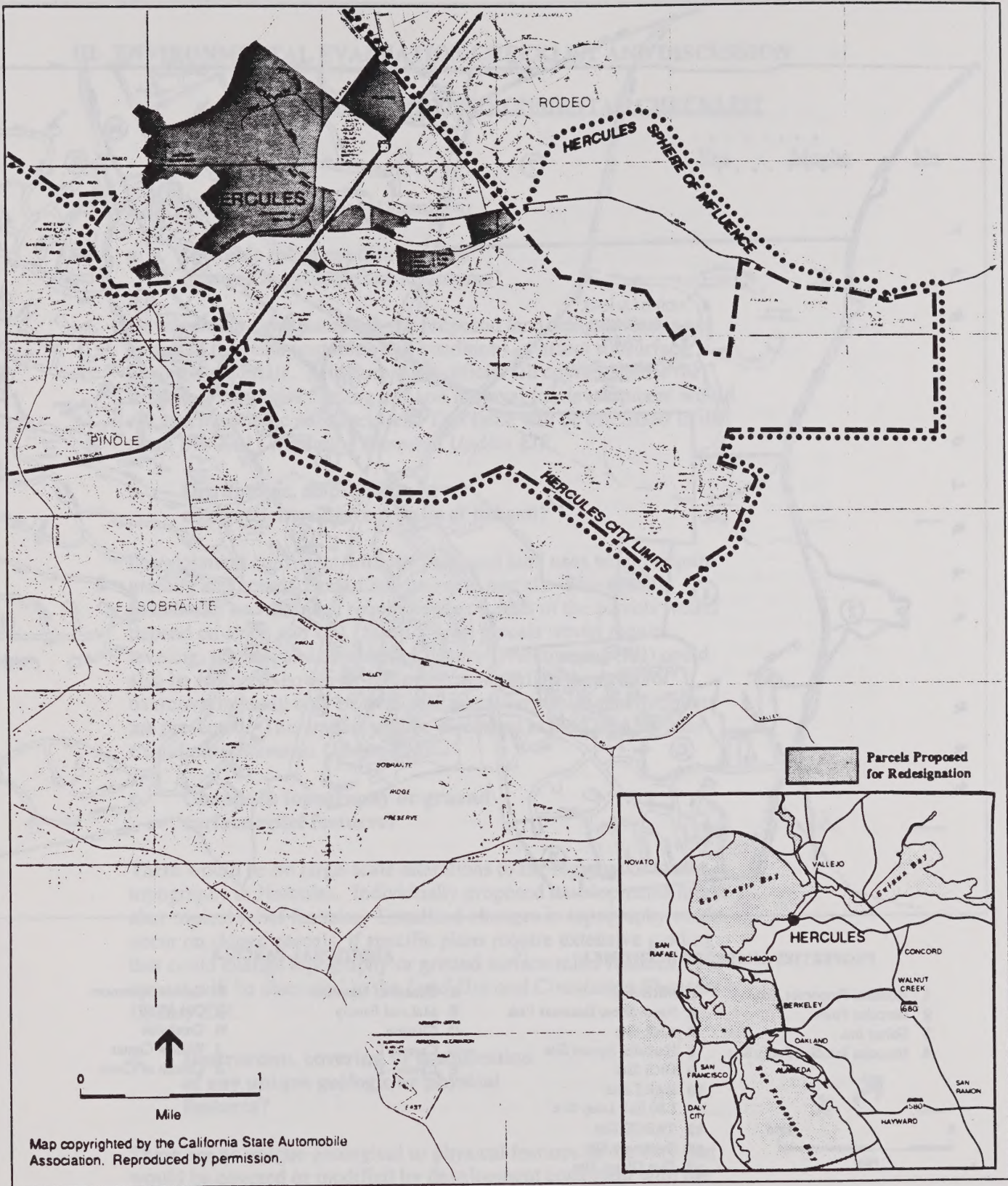
Aspects of the environment that would be affected by implementation of the updated Land Use and Circulation Elements are (please refer to the attached Environmental Evaluation Checklist):

Earth (a-g), Air (a), Water (a-c,e-f,g,i), Plant Life (a-c), Animal Life (a-d), Noise (a,b), Light and Glare, Land Use, Population, Housing, Transportation/Circulation (a-d, f), Public Services (a-e), Energy (a-b), Utilities (c-f), Human Health (b), Aesthetics, Cultural Resources (a-b).

B. EFFECTS FOUND NOT TO BE SIGNIFICANT

The following potential impacts of the Land Use and Circulation Elements Update were determined to be less than significant (please refer to the attached Environmental Evaluation Checklist):

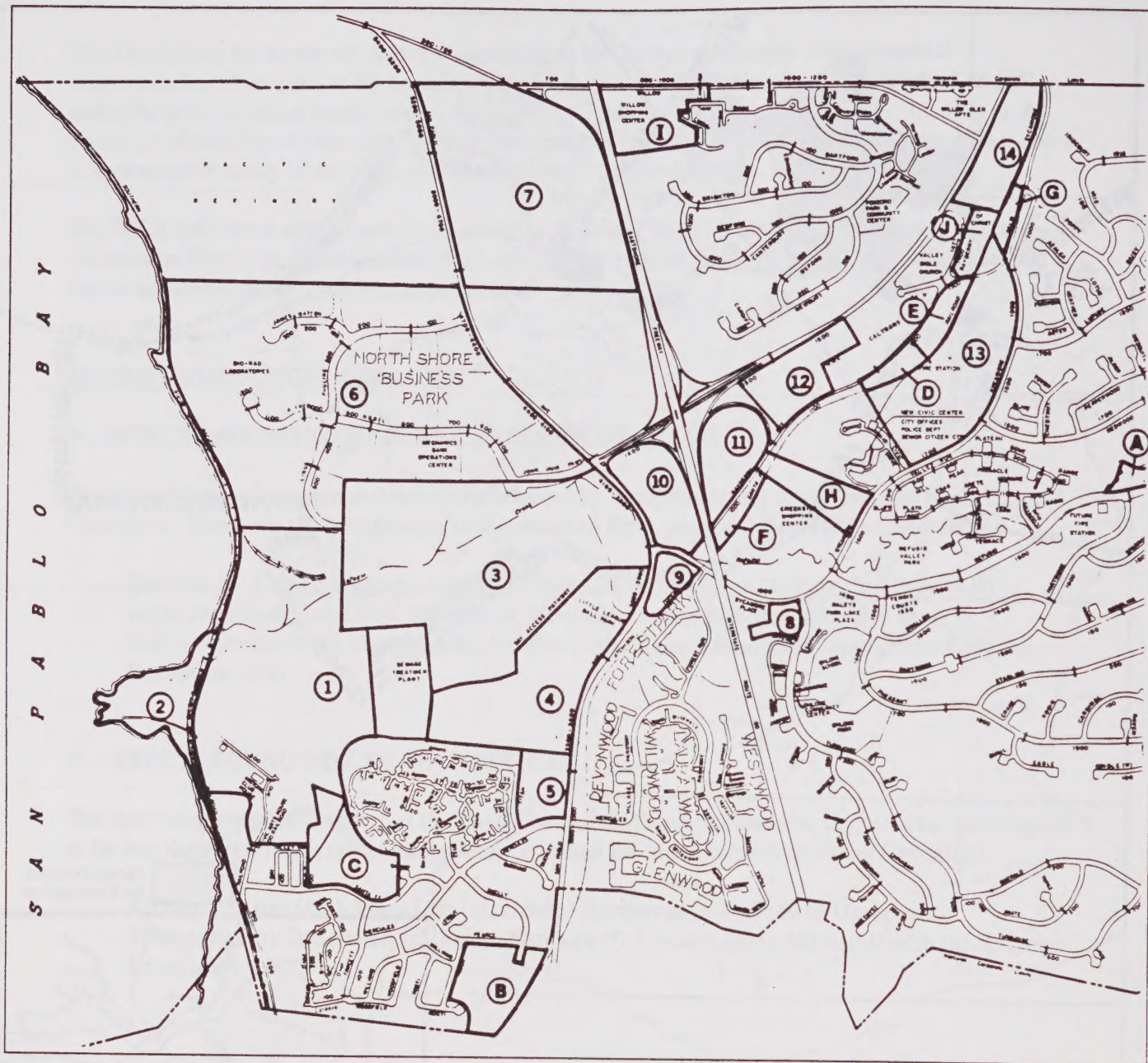
Air (b-c), Water (d,h), Plant Life (a), Natural Resources (a-b), Risk of Upset (a-b), Transportation/Circulation (e), Public Services (f), Utilities (a-b), Human Health (a), Cultural Resources (c,d).



SOURCE: Environmental Science Associates

Hercules General Plan Land Use and Circulation Elements Update / 930314 ■

Figure 1
Regional Location



PROPERTIES ANALYZED IN THE MEA

- | | |
|--------------------------------|-----------------------------|
| 1 Hercules Properties, Inc. | 5 MRB Site |
| 2 Hercules Point | 6 North Shore Business Park |
| 3 Gelsar Inc. | 7 ANR Site |
| 4 Hercules Inc./San Pablo Site | 8 Hercules Square Site |
| | 9 ORB Site |
| | 10 BART Site |
| | 11 I-80 Exit Loop Site |
| | 12 TABCO Site |
| | 13 Sycamore Site |
| | 14 Five Giants Site |



ADDITIONAL PARCELS

- | | |
|----------------------|--------------------|
| A Church of Nazarene | F Carone Sycamore |
| B McLeod Family | G Old ATSF |
| C Citation | H Creekside |
| D Carone-1 | I Willow Center |
| E Carone-2 | J Church of Christ |

SOURCE: Environmental Science Associates, Inc.

Hercules General Plan Land Use and Circulation Elements Update / 930314 ■

Figure 2
Parcel Locations

III. ENVIRONMENTAL EVALUATION CHECKLIST AND DISCUSSION

INITIAL STUDY ENVIRONMENTAL CHECKLIST

Yes Maybe No

1. **EARTH.** Will the proposal result in:

- a. **Unstable earth conditions or in
changes in geologic substructures?**

— X —

Development consistent with the proposed land designations is not expected to create unstable earth conditions or affect subsurface geologic materials. Alluvium and artificial fill cover underlie the surface. Foundation cutting and soil removal for development would not reach geologic substructures. This issue will be discussed in the *Land Use and Circulation Elements Update EIR*.

- b. **Disruptions, displacements,
compaction or overcovering of the soil?**

X — —

Development consistent with the proposed land uses would require grading and compaction of soil on some parcels. Site-specific foundation and drainage requirements on each of the parcels would depend on slope and soil. Steep-sloped parcels would require leveling, grading and compaction. Some overcovering (fill) could also be required; however, information regarding the need for overcovering may only be available when individual specific plans are presented. This impact will be discussed in the *Land Use and Circulation Elements Update EIR*.

- c. **Change in topography or ground
surface relief features?**

— X —

There would be no large-scale alterations to the regional or local topography in Hercules. Individually proposed developments might alter topical relief features. Localized changes in topography might occur on sloped parcels, if specific plans require extensive grading that could change topography or ground surface relief features. This impact will be discussed in the *Land Use and Circulation Elements Update EIR*.

- d. **Destruction, covering or modification
of any unique geologic or physical
features?**

— X —

There are no unique geological or physical features in the City that would be covered or modified by development consistent with the proposed land uses. There are several potential wetlands and a creek corridor that could be affected by implementation of the proposed land uses. This issue will be discussed in the *Land Use and Circulation Elements Update EIR*.

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
e. Any increase in wind or water erosion of soils, either on or off the site?	—	<u>X</u>	—

Erosion could occur on individual parcels as they are developed. On-site soil erosion could occur during construction. Erosion potential would be decreased by implementing standard construction mitigation measures as stated in individual erosion and sediment control plans. The increase in impervious surface and related erosion issues will be discussed in the *Land Use and Circulation Elements Update EIR*.

f. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	—	<u>X</u>	—
--	---	----------	---

Several parcels are drained by Refugio Creek, a previously widened and deepened channel at its lower reaches near San Pablo Bay. Silt or eroded soils could be deposited in the creek by future development of individual parcels but would be minimized through the use of retention basins and vegetation. Measures to be implemented by developers shall be identified in their erosion and sediment control plans. In general, changes in siltation and deposition into Refugio Creek will be discussed in the *Land Use and Circulation Elements Update EIR*.

g. Exposure of people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure or similar hazards?	<u>X</u>	—	—
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Several parcels located on sloped areas are subject to landslides. Geological and soil conditions in the City could pose exposure to ground shaking in areas of compressed bay mud, due to the proximity of the Hayward fault. Liquefaction and lurching could also occur in the same areas. Modern engineering practices and prudent construction would minimize exposure to geologic hazards. Impacts and general mitigation measures will be discussed in the *Land Use and Circulation Elements Update EIR*.

Yes Maybe No

2. **AIR. Will the proposal result in:**

a. Substantial air emissions or deterioration of ambient air quality?

X — —

Emissions associated with development of the proposed land uses would result, from construction and operation. Construction would result in short-term increases in nitrogen oxides, sulfur oxides, carbon monoxide, carbon dioxide, hydrocarbons and particulates from diesel- and gasoline-powered equipment.

Buildout of the proposed land uses would result in operational emissions of carbon monoxide and nitrogen oxides from increased vehicular traffic; however, the proposed Circulation Element Update is expected to identify capital and efficiency improvements in Hercules' infrastructure. These transportation system improvements would assist in offsetting the increase in vehicular emissions. Stationary source emissions may also increase, depending on the specific industrial projects that would be built on the proposed land uses. Air quality emissions associated with development of the proposed land use designations will be analyzed in the *Land Use and Circulation Elements Update EIR*.

b. The creation of objectionable odors?

— — X

Project developments or transportation system improvements associated with proposed land uses would not create any objectionable odors. The Industrial-Residential mixed-use designation would combine research & development and start-up type businesses with residential housing. It is expected that the mixed-use development would not create any objectionable odors to which the residents would be exposed. Therefore, this issue does not require analysis in the *Land Use and Circulation Elements Update EIR*.

c. Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?

— — X

Local and regional wind patterns would not be impacted by development consistent with the proposed land uses. Therefore, this issue does not require analysis in the *Land Use and Circulation Elements Update EIR*.

Yes Maybe No

3. **WATER.** Will the proposal result in:

- a. **Changes in currents, or the course or direction of water movements, in either marine or fresh waters?**

— X —

Refugio Creek and its tributaries serve as the main drainage feature in the City. Site-specific developments could require that the existing drainage be modified so that adequate capacity for expected flood flows is available. Although such changes would not necessarily be proposed as part of individual projects, they could occur as an indirect impact. This could be considered a change in the course or direction of fresh water, and will be discussed in the *Land Use and Circulation Elements Update EIR*.

- b. **Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff?**

X — —

An increase in the amount of impervious coverage from site development and suggested circulation improvements would increase surface runoff and could affect flow levels in Refugio Creek. This issue will be discussed in the *Land Use and Circulation Elements Update EIR*.

- c. **Alterations to the course or flow of flood waters?**

— X —

Portions of some parcels are located within the Federal Emergency Management Agency (FEMA) 100-year flood plain. Although the course of flood waters would not be altered, flow levels in Refugio Creek could be higher during severe storms, due to the potential increase in impervious surface. This impact will be discussed in the *Land Use and Circulation Elements Update EIR*.

- d. **Change in the amount of surface water in any water body?**

— X —

Development consistent with the proposed land use designations would not change the amount of surface water in San Pablo Bay; however, several potential wetlands and a creek exist on a few of the parcels. This issue will be discussed in the *Land Use and Circulation Elements Update EIR*.

Yes Maybe No

- e. **Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?**

— X —

Construction activities could result in more soils being carried away in runoff. Operational activities could also have a potential effect on water quality. Storms could carry surface pollutants (e.g., oil, fertilizers) that collect on pavement to nearby waters. This issue will be discussed in the *Circulation and Land Use Elements Update EIR*.

- f. **Alteration of the direction or rate of flow of ground waters?**

— X —

Development consistent with the proposed land use designations could alter the direction of rate of flow of ground waters. This issue will be discussed in the *Circulation and Land Use Elements Update EIR*.

- g. **Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?**

— X —

Groundwater underlies Refugio Valley at shallow depths, varying from two to 50 feet, depending on season and location. Development consistent with the proposed land use designations would increase the amount of impervious coverage. Decreased permeability could result in an effect on groundwater recharge rates. This impact will be analyzed in the *Land Use and Circulation Elements Update EIR*.

- h. **Substantial reduction in the amount of water otherwise available for public water supplies?**

— — X

The East Bay Municipal Utility District (EBMUD) provides water to the City of Hercules. Parcel improvements would be served through water main extensions from the Maloney Pressure Zone that provides service from the 0- to 200-foot elevation range. The District has indicated it can supply water to the proposed properties and the existing supply is adequate. Therefore, the reduction in amount of water would not be considered substantial. However, water availability will be discussed in the *Land Use and Circulation Elements Update EIR*.

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
i. Exposure of people or property to water-related hazards such as flooding or tidal waves?	—	<u>X</u>	—

Portions of several undeveloped parcels are located within the 100-year flood zone associated with Refugio Creek and San Pablo Bay. These areas could be inundated by a geologically influenced wave or high tides combined with a severe storm. Coastal flooding and wave run-ups could also expose people and property to water levels, although the possibility could be reduced through standard measures by raising finished floor grades above the flood plain and siting storm drains in coordination with the City Engineer. This issue will be discussed in the *Land Use and Circulation Elements Update EIR*.

4. **PLANT LIFE**. Will the proposal result in:

a. Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants)?	—	<u>X</u>	—
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Grasslands, tree stands, tidal marsh, tidal mudflats and riparian corridors in the City support several non-native plant species. Development consistent with the proposed land use designations could change the number of species present on individual parcels. Introduction of non-native habitat (e.g., buildings, pavement, etc) could reduce the diversity of some plant species. This impact will be discussed in the *Land Use and Circulation Elements Update EIR*.

b. Reduction of the numbers of any unique, rare or endangered species of plants?	—	<u>X</u>	—
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Soft-haired bird's beak and Mason's lilaeopsis are two California rare plants that are federal candidates for listing as endangered. Habitat for these species occurs in the salt marsh around Hercules Point; however, surveys conducted in June and July of 1986 did not find any populations in the area. Regulatory context and possibility of reduction in the numbers of special status species will be discussed in the *Land Use and Circulation Elements Update EIR*.

c. Introduction of new species of plants into an area, or a barrier to the normal replenishment of existing species?	—	<u>X</u>	—
---	---	----------	---

Site-specific residential and commercial development could introduce non-native vegetation for landscaping purposes that could create a barrier for replenishment of existing native species. Existing non-native species could be affected by the introduction of new plant species. This impact will be discussed in the *Land Use and Circulation Elements Update EIR*.

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
d. Reduction in acreage of any agricultural crop?	—	—	<u>X</u>

No agricultural crops are cultivated on the parcels proposed for land use designations. Therefore, no reduction in acreage of agricultural crops would result from the proposed project. The issue requires no further analysis in the *Land Use and Circulation Elements Update EIR*.

5. **ANIMAL LIFE.** Will the proposal result in:

a. Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects)?	—	<u>X</u>	—
--	---	----------	---

The coastal salt marsh, grassland and wetland habitats in Hercules support a variety of animal species. Development consistent with the proposed land uses could reduce the numbers of some animal species by decreasing the size of their foraging or living habitat. This impact will be discussed in the *Land Use and Circulation Elements Update EIR*.

b. Reduction of the numbers of any unique, rare or endangered species of animals?	—	<u>X</u>	—
--	---	----------	---

Several special status animal species may live in the Hercules vicinity, particularly the salt marsh around Hercules Point and the Refugio Creek Corridor. Although the habitat in the San Pablo Bay area is suitable to support special status birds, mammals, reptiles and amphibians, the presence of any has not been confirmed in this vicinity. If found, measures to protect them would be implemented according to law. Potential existence, regulatory context and mitigation measures will be discussed in the *Land Use and Circulation Elements Update EIR*.

c. Introduction of new species of animals into an area, or a barrier to the migration or movement of animals?	—	<u>X</u>	—
--	---	----------	---

New species of animals would not be introduced by development consistent with the proposed land uses. The land use designations and subsequent development could, however, create a barrier to migration or movement of animals across wetland or wildlife corridors. This impact will be discussed in the *Land Use and Circulation Elements Update EIR*.

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
d. Deterioration to existing fish or wildlife habitat?	—	<u>X</u>	—
Wildlife habitat could be adversely affected by development consistent with the proposed land use designations. No fish inhabit Refugio Creek, nor is any area of Hercules of specific concern for aquatic wildlife. Construction in the vicinity of existing fish and wildlife habitats would be an adverse impact; however, seasonally timed construction could avoid peak wildlife breeding seasons. A biological survey will be conducted on the individual parcels for existing wildlife habitat. Mitigation measures, if necessary, would reduce the impact to wildlife habitat and will also be discussed in the <i>Land Use and Circulation Elements Update EIR</i> .			
6. <u>NOISE</u>. Will the proposal result in:			
a. Increases in existing noise levels?	<u>X</u>	—	—
Noise associated with construction activities on the proposed land use areas would increase noise levels in the vicinity of each parcel and could temporarily affect sensitive receptors (e.g. residences, parks, schools, etc.). Truck traffic, grading and excavation equipment, paving and street painting equipment would increase noise levels at surrounding parcels and along transport routes. Development could result in increased ambient noise levels due to traffic and commercial and industrial activity. The EIR will discuss the effect of projected noise levels on identified noise-sensitive land uses and the compatibility of the proposed land use designations with established noise guidelines.			
b. Exposure of people to severe noise levels?	—	<u>X</u>	—
No industrial uses that would generate extreme noise levels would be permitted near sensitive receptors under the proposed land use designations. The proposed industrial/residential and commercial/residential mixed-use parcels could expose people to high levels of noise; however, the uses permitted under these proposed designations would not generate severe noise levels. Construction noise (e.g., pile driving, bulldozing) will be discussed in the <i>Land Use and Circulation Elements Update EIR</i> .			
7. <u>LIGHT AND GLARE</u>. Will the proposal produce new light or glare?	—	<u>X</u>	—
Buildings constructed according to designated land uses could result in increases in ambient light levels at night from illumination devices, parking lights, automobile beams, and street lighting. Day glare could result from painted and reflective building facades, painted and			

Yes Maybe No

chrome automobile surfaces, and might be visible from I-80 and surrounding viewsheds. Light and glare impacts, where produced, will be qualitatively analyzed in the *Land Use and Circulation Elements Update EIR*.

8. LAND USE. Will the proposal result in a substantial alteration of the present or planned land use of an area?

X — —

The proposed Land Use and Circulation Element Updates to the City of Hercules General Plan would change the existing land use designations of 24 parcels ranging in size from 2 to almost 70 acres. New land use designations include Historic Town Center, Commercial, Planned Office, General Commercial, Industrial, Multi-family Residential and General Commercial. Development of parcels according to their proposed land use designations would result in a substantial alteration of the present land use. Some parcels would be developed with more intensive land uses; other parcels would experience a change in land use. Consistency with plans and policies, existing uses, and environmental setting will be discussed in the *Land Use and Circulation Elements Update EIR*.

9. NATURAL RESOURCES. Will the proposal result in:

a. Increase in the rate of use of any natural resource?

— — X

Although vehicles traveling to commercial and industrial projects would use significant quantities of fuel, a person would unlikely purchase additional amounts of fuel to reach the newly constructed projects in Hercules. Increases in the use of natural gas would not be considered substantial. Therefore, this issue does not require analysis in the *Land Use and Circulation Elements Update EIR*.

b. Substantial depletion of any non-renewable natural resource?

— — X

Development consistent with the proposed land uses would not result in depletion of any non-renewable natural resource. Therefore, this issue does not require analysis in the *Land Use and Circulation Elements Update EIR*.

Yes

Maybe

No

10. **RISK OF UPSET.** Will the proposal involve:

- a. **Risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals, or radiation) in the event of an accident or upset conditions?**

—

—

X

Development consistent with the proposed land uses would not result in the risk of an explosion of hazardous substances in the event of an accident or upset conditions because none of the proposed land uses would permit activities that would be expected to involve substantial quantities of hazardous substances. Only "light" industrial uses would be permitted under the proposed Planned Commercial/Industrial land use designation. Examples of these uses include warehouse, distribution, wholesale, and research and development companies. Because development consistent with the proposed land uses would not involve any hazardous substances, this issue will not be discussed in the *Land Use and Circulation Elements Update EIR*.

- b. **Possible interference with an emergency response plan or an emergency evacuation plan?**

—

—

X

Development consistent with the proposed land uses would not result in interference with an emergency response or evacuation plan, because no structures or facilities would be erected that would obstruct regular emergency response systems. Current police response times for the entire city range from 4.0 to 7.0 minutes, while average fire service response time is under 4.5 minutes. Roadway infrastructure improvements suggested by the *Land Use and Circulation Elements Update EIR* could improve response times, by improving the efficiency of the existing roadway. Because existing response times are adequate and the existing infrastructure would be improved, this issue does not require analysis in the *Land Use and Circulation Elements Update EIR*.

11. **POPULATION.** Will the proposal alter the location, distribution, density, or growth rate of the human population of an area?

X

—

—

The proposed land use designations would allow up to 5.6 million square feet of commercial and industrial space and up to 4,000 new units of multi-family residences. The location and distribution of human population would be altered. Areas presently devoid of population would experience substantial gains as development occurs. Population figures, growth trends and employment and jobs/housing balance information will be discussed in the *Land Use and Circulation Elements Update EIR*.

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
12. <u>HOUSING.</u> Will the proposal affect existing housing, or create a demand for additional housing?	—	<u>X</u>	—

Development consistent with the proposed land use designations would result in full build-out of the community. Development of the proposed housing units could be offset by additional housing demand from the new employees of proposed commercial and industrial development. Projected population, employment and housing levels and associated impacts from development will be discussed in the *Land Use and Circulation Elements Update EIR*.

13. **TRANSPORTATION/CIRCULATION.** Will the proposal result in:

a. Generation of substantial additional vehicular movement?	<u>X</u>	—	—
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Vehicular movement would be generated from the potential multi-family residential units and commercial and industrial land uses. The number of vehicle trips generated by the project will be estimated in the EIR and the effect on local and regional roadways assessed. Mitigation measures for the increase in traffic and regulatory context (level of service standards, etc.) applicable to the impacts of development consistent with the proposed land use designations will be discussed in the *Land Use and Circulation Elements Update EIR*.

b. Effects on existing parking facilities, or demand for new parking?	<u>X</u>	—	—
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Development consistent with the proposed land uses would increase parking demand by increasing the number of employee-based and housing developments in the City. This impact will be analyzed in the *Land Use and Circulation Elements Update EIR*.

c. Substantial impact upon existing transportation systems?	<u>X</u>	—	—
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Development consistent with the proposed land uses would result in a substantial impact on existing transportation systems. Existing intersection levels of service (LOS) could decrease as a result of the potential developments. The Circulation Element Update will identify capital improvements (e.g., road alignment, road additions) and efficiency improvements (e.g., restriping, signalizing) to the existing system, and assess traffic impacts using the West County Traffic Model and Contra Costa County Measure C guidelines. This impact will be discussed in the *Land Use and Circulation Elements Update EIR*.

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
d. Alterations to present patterns of circulation or movement of people and/or goods?	<u>X</u>	—	—

Development consistent with the proposed land use designations could alter the present patterns of circulation or movement of people and goods. Capital improvements to the existing road network could introduce additional driving routes. Capital improvements and transportation efficiency measures identified in the Circulation Element Update will be discussed in the EIR. The need for additional bus routes could also alter the movements of people and/or goods. Impacts to the present patterns of circulation will be discussed in the *Land Use and Circulation Elements Update EIR*.

e. Alterations to waterborne, rail or air traffic?	—	—	<u>X</u>
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No change in waterborne, rail or air traffic is expected as a result of the proposed *Land Use and Circulation Elements Update*.

f. Increase in traffic hazards to motor vehicles, bicyclists or pedestrians?	—	<u>X</u>	—
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Development consistent with the proposed land use designations could result in substantial increases in existing traffic levels. Hazards to bicyclists or pedestrians from development could be reduced by planned roadway and capital improvements that accommodate alternative modes of transportation. For example, potential roadway improvements in the vicinity of the former Hercules Powder Company town could involve striped or separate bicycle lanes. This impact will be analyzed in the *Land Use and Circulation Elements Update EIR*.

14. PUBLIC SERVICES. Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:

a. Fire protection?	<u>X</u>	—	—
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Development consistent with the proposed land use designations would result in full "build-out" of the City and would require additional fire services. Funding for additional services to new development would be provided by one-time and ongoing revenues from parcel development. The Rodeo - Hercules Fire Protection District has specified precisely the equipment and personnel requirements related to buildout of the City. Effects on fire protection services will be discussed in the *Land Use and Circulation Elements Update EIR*.

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
b. Police protection?	<u>X</u>	—	—

The Hercules Police Department has indicated that, assuming buildout under the proposed land use designations, police patrols could be redivided from two sectors to three sectors and require an additional patrol car and officer. Revenue from new development would pay for the additional police services required in Hercules. The need for new police protection services will be discussed in the *Land Use and Circulation Elements Update EIR*.

c. Schools?	<u>X</u>	—	—
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Currently, schools serving Hercules are over or at capacity. If the properties were developed under the proposed land uses, additional students would attend West County Unified School District Schools. Projects proposed for individual parcels would pay applicable developer fees imposed by the District. In Hercules, additional students could require portable classrooms and the construction of additional school facilities. Impacts to the existing school system will be discussed in the *Land Use and Circulation Elements Update EIR*.

d. Parks or other recreational facilities?	—	<u>X</u>	—
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Development of the proposed land uses could increase use at existing parks, depending on the specific plans proposed for individual parcels. A Joint Powers Authority comprising the cities of Hercules and Pinole and the East Bay Regional Park District undertook a Shoreline Feasibility Study to investigate the feasibility of a shoreline trail between Point Pinole and Lone Tree Point in Rodeo. This trail, along with other trails proposed in specific development plans, would reduce the impact of use on existing parks. Furthermore, the proposed Recreational Commercial land use designation could result in land uses for golfing, driving ranges, batting cages and other recreational activities. Impacts to parks and other facilities will be discussed in the *Land Use and Circulation Elements Update EIR*.

e. Maintenance of new public facilities, including roads?	—	<u>X</u>	—
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Development of the proposed land uses would result in the need for new roads for access to several parcels. Capital improvements would be required to service developed parcels and efficiency (e.g. stoplight timing, road striping) improvements will be identified for the existing transportation network. This could result in additional road maintenance above current levels. Improvements and maintenance of new road facilities will be discussed in the *Land Use and Circulation Elements Update EIR*.

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
f. Other governmental services?	—	—	<u>X</u>

Other governmental services are not expected to be affected by the proposed *Land Use and Circulation Elements Update EIR*.

15. **ENERGY**. Will the proposal result in:

a. Use of substantial amounts of fuel or energy?	—	<u>X</u>	—
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Implementation of the proposed Land Use and Circulation Elements Update to the Hercules General Plan would result in the use of additional fuel or energy; however, it is not known whether the additional use would be considered substantial. This impact will be discussed in the *Land Use and Circulation Elements Update EIR*.

b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?	—	<u>X</u>	—
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Construction and operation of commercial, industrial and housing land uses could result in an increase in demand upon existing sources of energy; however, it would not require the development of new sources of energy. This impact will be analyzed in the *Land Use and Circulation Elements Update EIR*.

16. **UTILITIES**. Will the proposal result in a need for new systems, or substantial alterations to the following utilities:

a. Power or natural gas?	—	—	<u>X</u>
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Development consistent with the proposed land use designations would require additional gas and electrical services. Although new distribution lines would have to be installed, PG&E has indicated that it has the ability to provide the increased capacity. Alterations in utilities will occur only as an extension of the current distribution lines; therefore, this effect would not be considered substantial and does not require analysis in the *Land Use and Circulation Elements Update EIR*.

b. Communications systems?	—	—	<u>X</u>
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Communication conduits would be extended to developments on the parcels suggested for new land use designations. Because Pacific Bell and Bay Cable currently provide communication and cable systems to the vicinity of each parcel, this would not be considered a substantial alteration.

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
; however, the issue will still be discussed in the <i>Land Use and Circulation Elements Update EIR</i> .			

c. Water?	—	<u>X</u>	—
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East Bay Municipal Utility District (EBMUD) has noted that an adequate distribution system and supply currently exists to provide water to the parcels proposed for land use designations. Therefore, the need for additional water would not require a new system and would not be considered significant. However, this impact will be addressed in the *Land Use and Circulation Elements Update EIR*.

d. Sewer or septic tanks?	<u>X</u>	—	—
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The Pinole-Hercules water treatment plant is currently operating near capacity. Two percent of the remaining capacity would be available to the City for treatment demands resulting from future growth. The lack of wastewater capacity could pose a constraint to the development of the parcels proposed for land use designations. Whether the remaining capacity could accommodate development is unknown; therefore, this impact will be analyzed in the *Land Use and Circulation Elements Update EIR*.

e. Storm water drainage?	—	<u>X</u>	—
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Development consistent with the proposed land use designations would increase the amount of runoff and consequently the amount of water flowing into the storm drainage system by covering more land with impervious surfaces. The City of Hercules has reserved a portion of future wastewater capacity to accommodate storm drainage treatment. However, drains for individual projects must be installed. The impact to storm water drainage will be discussed in the *Land Use and Circulation Elements Update EIR*.

f. Solid waste and disposal?	—	<u>X</u>	—
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Development consistent with the proposed land use designations in Hercules would require the addition of another route and truck for solid waste service. Keller Canyon Landfill has recently opened and will serve as the solid waste disposal facility. Although there would be no need for a new disposal facility, the potential for alteration to the existing disposal system will be discussed in the *Land Use and Circulation Elements Update EIR*.

- | | <u>Yes</u> | <u>Maybe</u> | <u>No</u> |
|---|------------|--------------|-----------|
| 17. <u>HUMAN HEALTH.</u> Will the proposal result in: | | | |
| a. Creation of any health hazard or potential health hazard (excluding mental health)? | — | — | <u>X</u> |
| <p>Development consistent with the proposed land use designations would not result in primary or secondary health hazards or potential hazards to humans, because no land uses are proposed that would expose people to health hazards. Therefore, this issue does not require analysis in the <i>Land Use and Circulation Elements Update EIR</i>.</p> | | | |
| b. Exposure of people to potential health hazards? | — | <u>X</u> | — |
| <p>The potential for exposure to hazardous materials exists on several parcels. The EIR will address the potential health hazard exposures in specific resource sections, such as hazardous materials, air quality and land use. This issue will be discussed in the <i>Land Use and Circulation Elements Update EIR</i>.</p> | | | |
| 18. <u>AESTHETICS.</u> Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view? | — | <u>X</u> | — |
| <p>Development of the proposed land uses with commercial, residential and industrial development would create buildings visible from I-80, San Pablo Bay, and other locations in Hercules. This could affect the existing visual character of the City and its surroundings, and views from points within the viewshed. Specific visual quality impacts would be dependent on the site-specific plans proposed for each parcel. Because the <i>Land Use and Circulation Elements Update EIR</i> is a Program EIR, discussion of visual impacts will be limited to general analyses of short-, medium- and long-range views in Hercules.</p> | | | |
| 19. <u>RECREATION.</u> Will the proposal result in an impact upon the quality or quantity of existing recreational opportunities? | — | <u>X</u> | — |
| <p>Existing recreational opportunities would not be affected by development consistent with the proposed land use designations. Although additional multi-family housing units could have an impact on existing parks, it is expected that user demand would be offset by the addition of recreational opportunities permitted under the</p> | | | |

Yes

Maybe

No

proposed land use designations. Recreational opportunities could be increased by development under the proposed Waterfront Commercial and the Recreational Commercial designations. While the Waterfront Commercial Designation would allow waterfront-type recreational activities, the Recreational Commercial designation would permit athletic clubs, batting cages and amusement centers. The issue of park impacts will be discussed in the *Land Use and Circulation Elements Update EIR*.

20. CULTURAL RESOURCES

- a. **Will the proposal result in the alteration of or the destruction of a prehistoric or historic archaeological site?**

— X —

As part of the MEA, an archaeological literature review of the California Archaeological Inventory was conducted at Sonoma State University to determine if known archaeological resources exist on any of the 14 parcels. Parcels for which land uses have been proposed since the MEA was published will also be examined for cultural resources, through an additional records search at Sonoma State University. Based on the records search, any impacts to cultural resources will be identified. Standard mitigation measures are available to protect subsurface archaeological sites discovered during construction. The mitigation measures, regulatory context and impacts to cultural resources will be discussed in the *Land Use and Circulation Elements Update EIR*.

- b. **Will the proposal result in adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object?**

— X —

As part of the Land Use Element Update, the vicinity of the historic Hercules Powder Company would be redesignated as Historic Town Center. The purpose of this designation is to allow reuse of the existing structures and addition of new structures, while maintaining the architectural character of the area and taking advantage of the adjoining shoreline. Restrictions and provisions to protect the existing structures would be applied to specific developments proposed on these parcels. This issue will be discussed in the *Land Use and Circulation Elements Update EIR*.

	<u>Yes</u>	<u>Maybe</u>	<u>No</u>
c. Does the proposal have the potential to cause physical change which would affect unique ethnic cultural values?	—	—	<u>X</u>

Development consistent with the proposed land use designations would not have the potential to cause physical change which would affect unique ethnic cultural values; therefore, this issue does not require analysis in the *Land Use and Circulation Elements Update EIR*.

d. Will the proposal restrict existing religious or sacred uses within the potential impact area?	—	—	<u>X</u>
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Development consistent with the proposed land use designations would not impact any religious or sacred uses in the City; therefore, this issue does not require analysis in the *Land Use and Circulation Elements Update EIR*.

21. MANDATORY FINDINGS OF SIGNIFICANCE.

a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	—	<u>X</u>	—
b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)	—	—	<u>X</u>
c. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.)	—	<u>X</u>	—
d. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	—	<u>X</u>	—

IV. DETERMINATION

On the basis of this initial evaluation:

- ___ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ___ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION WILL BE PREPARED.
- X I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT IS REQUIRED.

Dated: _____

(Signature)

(Print Name)

(Title)

APPENDIX B: RESPONSES TO NOTICE OF PREPARATION



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Sacramento Field Office
2800 Cottage Way, Room E-1803
Sacramento, California 95825-1846

APR - 1

In Reply Refer To:
PPN 1482

March 31, 1994

Gary Hembree
Community and Business
Development Director
City of Hercules
111 Civic Drive
Hercules, California 94547

Subject: Notice of Preparation of a Draft Environmental Impact Report;
City of Hercules General Plan Update, Refugio Creek, Hercules,
Contra Costa County, California

Dear Mr. Hembree:

The U.S. Fish and Wildlife Service (Service) has reviewed the Notice of Preparation of a Draft Environmental Impact Report for the City of Hercules General Plan Update. These comments are intended to assist you in your review of the proposal, and will not take the place of any formal comments that may be required under the provisions of the Fish and Wildlife Coordination Act.

Enclosure A provides a list of sensitive species that may occur in the county of the project area and general survey guidelines. Enclosure B recommends general guidelines for identifying and mitigating project impacts to fish, wildlife, and their habitats. We encourage you to use these guidelines to develop a comprehensive environmental document that addresses these needs.

If you have any questions regarding these comments, please contact June DeWeese at (916) 978-5408 (Ext. 351).

Sincerely,

for

Dale A. Pierce
Acting Field Supervisor

Enclosures

cc: Reg. Dir., (ARD-ES)
FWS-HC, Section 7
Reg. Mgr., CDFG, Reg. III, Yountville

ENCLOSURE A

Endangered Species. This attachment identifies those listed, proposed, and/or candidate species that may occur in the proposed project area. Information and maps concerning candidate species in California may be obtained from the California Natural Diversity Data Base, a program administered by the California Department of Fish and Game. Requests for information should be addressed to the Marketing Manager, California Department of Fish and Game, Natural Diversity Data Base, 1416 Ninth Street, Sacramento, California 95814. The marketing manager may be contacted by calling (916) 324-0562. You may request additional information from the Chief, California Department of Fish and Game, Non-Game Heritage Program, at (916) 324-8348.

Listed species are fully protected under the mandates of the Endangered Species Act (Act), as amended. Section 9 of the Act and its implementing regulations prohibit the "take" of a federally listed fish and wildlife species by any person, as defined by the Act. Take is defined by the Act "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such species. Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR § 17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures. If a Federal agency is involved with the permitting, funding, or carrying out of this project, initiation of formal consultation is required between that agency and the Service pursuant to Section 7 of the Act if it is determined that the proposed project may affect a federally listed species. Federal agencies must confer if they determine that the continued existence of a proposed species may be jeopardized by the project. Such consultation or conference could result in a biological opinion that addresses anticipated effects of the project to listed and proposed species. The biological opinion may authorize a limited level of incidental take for federally listed species.

If a Federal agency is not involved with the project, and federally listed species may be taken as part of the project, then an "incidental take" permit pursuant to Section 10(a) of the Act should be obtained. The Service may issue such a permit upon completion by the permit applicant of a satisfactory conservation plan for the listed species that may be affected by the project.

We recommend that appropriately designed surveys for listed, proposed, or candidate species be undertaken by qualified biologists. Surveys for plants should not be restricted to the identified species; instead, a complete botanical inventory of the project site should be conducted. Botanical surveys should be conducted at intervals throughout the spring and summer, in order to maximize the likelihood of encountering each species during the season most appropriate for accurate identification. Surveys should be based on field inspection, and not on prediction of occurrence based on habitat or physical features of the site. Guidelines for conducting adequate botanical surveys are available from the Natural Heritage Division of the California Department of Fish and Game at (916) 322-2493.

The results of all biological surveys should be published in the environmental impact report. The report should include a brief discussion of survey methods (including sampling methods and timing of surveys), results (including a list of all species encountered as well as maps of vegetation types, populations of plant species, and breeding, nesting or burrowing sites or other habitat components important to animal species), and conclusions. If it is concluded that a given sensitive species is not present, the justification for this conclusion should be fully explained.

Should these surveys determine that listed, proposed, or candidate species may be affected by the proposed project, the Service recommends that the project proponent, in consultation with this office and the California Department of Fish and Game, develop a plan that mitigates for the project's direct and indirect impacts to these species and compensates for project-related loss of habitat. The mitigation plan also should be included in the environmental impact report.

One of the benefits of considering candidate species as well as listed and proposed species early in the planning process is that by exploring alternatives, it may be possible to avoid conflicts that could develop, should a candidate species become listed before the project is complete. In addition, in instances where the Service addresses proposed projects under its Fish and Wildlife Coordination Act authority, we must also analyze the impacts on candidate species and make recommendations to mitigate any adverse effects.

ENCLOSURE A

LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES AND CANDIDATE SPECIES THAT MAY OCCUR IN THE AREA OF CONTRA COSTA COUNTY, CALIFORNIA (1-1-94-TA-715, MARCH 26, 1994)

Listed Species

Fish

winter-run chinook salmon, *Oncorhynchus tshawytscha* (E)
delta smelt, *Hypomesus transpacificus* (T)

Reptiles

giant garter snake, *Thamnophis gigas* (T)

Birds

bald eagle, *Haliaeetus leucocephalus* (E)
American peregrine falcon, *Falco peregrinus anatum* (E)
Aleutian Canada goose, *Branta canadensis leucopareia* (T)
California brown pelican, *Pelecanus occidentalis californicus* (E)
California clapper rail, *Rallus longirostris obsoletus* (E)
California least tern, *Sterna antillarum* (=albifrons) browni (E)

Mammals

San Joaquin kit fox, *Vulpes macrotis mutica* (E)
salt marsh harvest mouse, *Reithrodontomys raviventris* (E)

Invertebrates

Lange's metalmark butterfly, *Apodemia mormo langei* (E)

Plants

large-flowered fiddleneck, *Amsinckia grandiflora* (E)
Contra Costa wallflower, *Erysimum capitatum* var. *angustatum* (E)
Antioch Dunes evening-primrose, *Oenothera deltoides* ssp. *howellii* (E)

Proposed Species

Fish

Sacramento splittail, *Pogonichthys macrolepidotus* (PT)

Amphibians

California red-legged frog, *Rana aurora draytonii* (PE)
Alameda whipsnake, *Masticophis lateralis euryxanthus* (PE)

Invertebrates

vernal pool fairy shrimp, *Branchinecta lynchi* (PE)
California linderiella, *Linderiella occidentalis* (PE)
longhorn fairy shrimp, *Branchinecta longiantenna* (PE)

Plants

California sea blite, *Suaeda californica* (PE)

Contra Costa County continued

Candidate Species

Fish

- green sturgeon, *Acipenser medirostris* (2R)
- longfin smelt, *Spirinchus thaleichthys* (2R■)

Amphibians

- California tiger salamander, *Ambystoma californiense* (2■)
- western spadefoot toad, *Scaphiopus hammondi hammondi* (2R)
- foothill yellow-legged frog, *Rana boylei* (2)

Reptiles

- northwestern pond turtle, *Clemmys marmorata marmorata* (2)
- southwestern pond turtle, *Clemmys marmorata pallida* (2)

Birds

- ferruginous hawk, *Buteo regalis* (2)
- tricolored blackbird, *Agelaius tricolor* (2)
- mountain plover, *Charadrius montanus* (2)
- California horned lark, *Eremophila alpestris actia* (2)
- loggerhead shrike, *Lanius ludovicianus* (2)
- California black rail, *Laterallus jamaicensis coturniculus* (1)
- Suisun song sparrow, *Melospiza melodia maxillaris* (2)
- San Pablo song sparrow, *Melospiza melodia samuelis* (2)
- salt marsh common yellowthroat, *Geothlypis trichas sinuosa* (2)
- Alameda (South Bay) song sparrow, *Melospiza melodia pusillula* (2)

Mammals

- San Pablo California vole, *Microtus californicus sanpabloensis* (2)
- salt marsh vagrant shrew, *Sorex vagrans halicoetes* (1)
- San Joaquin Valley woodrat, *Neotoma fuscipes riparia* (2)
- San Francisco dusky-footed woodrat, *Neotoma fuscipes annectens* (2)
- Suisun ornate shrew, *Sorex ornatus sinuosus* (1)
- riparian brush rabbit, *Sylvilagus bachmani riparius* (1)
- greater western mastiff-bat, *Eumops perotis californicus* (2)
- Pacific western big-eared bat, *Plecotus townsendii townsendii* (2)

Invertebrates

- curved-foot hygrotus diving beetle, *Hygrotus curvipes beetle* (2)

Plants

- Alameda manzanita, *Arctostaphylos pallida* (1)
- Suisun aster, *Aster chilensis* var. *lentus* (2)
- heartscale, *Atriplex cordulata* (2)
- valley spearscale, *Atriplex joaquiniana* (2)
- soft bird's-beak, *Cordylanthus mollis* ssp. *mollis* (1)
- Mt. Diablo bird's-beak, *Cordylanthus nidularius* (1)
- procumbent bird's-beak, *Cordylanthus nidularius* (1)
- interior California larkspur, *Delphinium californicum* ssp. *interius* (2)

Contra Costa County continued

Plants continued

- recurved larkspur, *Delphinium recurvatum* (2)
- Contra Costa buckwheat, *Eriogonum truncatum* (2*)
- diamond-petaled poppy, *Eschscholzia rhombipetala* (2)
- fragrant fritillary, *Fritillaria liliacea* (2)
- Diablo rock-rose, *Helianthella castanea* (2)
- Brewer's dwarf-flax, *Hesperolinon breweri* (2)
- Santa Cruz tarweed, *Holocarpha macradenia* (1)
- Northern California black walnut, *Juglans californica* var. *hindsii* (2)
- Hinds' walnut, *Juglans hindsii* (1R)
- Contra Costa goldfields, *Lasthenia conjugens* (1)
- delta tule-pea, *Lathyrus jepsonii* ssp. *jepsonii* (2)
- Mason's lilaeopsis, *Lilaeopsis masonii* (2)
- Mt. Diablo phacelia, *Phacelia phacelioides* (2)
- rock sanicle, *Sanicula saxatilis* (2)
- uncommon jewelflower, *Streptanthus albidus* ssp. *peramoenus* (1)
- Mt. Diablo jewelflower, *Streptanthus hispidus* (2)
- caper-fruited tropidocarpum, *Tropidocarpum capparideum* (2*)

- (E)--Endangered (T)--Threatened (P)--Proposed (CH)--Critical Habitat
- (1)--Category 1: Taxa for which the Fish and Wildlife Service has sufficient biological information to support a proposal to list as endangered or threatened.
- (2)--Category 2: Taxa for which existing information indicated may warrant listing, but for which substantial biological information to support a proposed rule is lacking.
- (1R)--Recommended for Category 1 status.
- (2R)--Recommended for Category 2 status.
- (#)--Listing petitioned.
- (*)--Possibly extinct.

ENCLOSURE B

The goal of the U.S. Fish and Wildlife Service is to conserve, protect and enhance fish, wildlife, and their habitats by timely and effective provision of fish and wildlife information and recommendations. To assist us in accomplishing this goal, we would like to see the items described below discussed in your environmental documents for the proposed project.

Project Description. The document should very clearly state the purposes of, and document the needs for, the proposed project so that the capabilities of the various alternatives to meet the purposes and needs can be readily determined.

A thorough description of all permanent and temporary facilities to be constructed and work to be done as a part of the project should be included. The document should identify any new access roads, equipment staging areas, and gravel processing facilities which are needed. Figures accurately depicting proposed project features in relation to natural features (such as streams, wetlands, riparian areas, and other habitat types) in the project area should be included.

Affected Environment. The document should show the location of, and describe, all vegetative cover types in the areas potentially affected by all project alternatives and associated activities. Tables with acreages of each cover type with and without the project for each alternative would also be appropriate. We recommend that all wetlands in the project area be delineated and described according to the classification system found in the Service's Classification of Wetlands and Deepwater Habitats of the United States (Cowardin 1979). The Service's National Wetland Inventory maps would be one starting point for this effort.

The document should present and analyze a full range of alternatives to the proposed project. At least one alternative should be designed to avoid all impacts to wetlands, including riparian areas. Similarly, within each alternative, measures to minimize or avoid impacts to wetlands should be included.

Lists of fish and wildlife species expected to occur in the project area should be in the document. The lists should also indicate for each species whether or not it is a resident or migrant, and the period(s) of the year it would be expected in the project area.

Environmental Consequences. The sections on impacts to fish and wildlife should discuss impacts from vegetation removal (both permanent and temporary), filling or degradation of wetlands, interruption of wildlife migration corridors, and disturbance from trucks and other machinery during construction and/or operation. These sections should also analyze possible impacts to streams from construction of outfall structures, pipeline crossings, and filling. Impacts on water quality, including nutrient loading, sedimentation, toxics, biological oxygen demand, and temperature in receiving waters should also be discussed in detail along with the resultant effects on fish and

aquatic invertebrates. Discussion of indirect impacts to fish, wildlife, and their habitats, including impacts from growth induced by the proposed project, should also be addressed in the document. The impacts of each alternative should be discussed in sufficient detail to allow comparison between the alternatives.

The cumulative impacts of the project, when viewed in conjunction with other past, existing, and foreseeable projects, need to be addressed. Cumulative impacts to fish, wildlife, wetlands and other habitats, and water quality should be included.

Mitigation Planning. Under provisions of the Fish and Wildlife Coordination Act, the Service advises the U.S. Army Corps of Engineers on projects involving dredge and fill activities in "waters of the United States", of which wetlands and some riparian habitats are subcategories. Since portions of this proposal may ultimately require a Corps permit, the Service will subsequently be involved under the Coordination Act. Therefore, if you have not done so already, we suggest that you or your representative consult the Corps regarding onsite wetlands and related habitats that may fall under their jurisdiction, and include this information in the draft document. When reviewing Corps public notices, the Service generally does not object to projects meeting the following criteria:

1. They are ecologically sound;
2. The least environmentally damaging reasonable alternative is selected;
3. Every reasonable effort is made to avoid or minimize damage or loss of fish and wildlife resources and uses;
4. All important recommended means and measures have been adopted, with guaranteed implementation to satisfactorily compensate for unavoidable damage or loss consistent with the appropriate mitigation goal; and
5. For wetlands and shallow water habitats, the proposed activity is clearly water dependent and there is a demonstrated public need.

The Service may recommend the "no project" alternative for those projects which do not meet all of the above criteria, and where there is likely to be a significant fish and wildlife resource loss.

When projects impacting waterways or wetlands are deemed acceptable to the Service, we recommend full mitigation for any impacts to fish and wildlife. The Council on Environmental Quality regulations for implementing the National Environmental Policy Act define mitigation to include: 1) avoiding the impact; 2) minimizing the impact; 3) rectifying the impact; 4) reducing or eliminating the impact over time; and 5) compensating for impacts. The Service supports and adopts this definition of mitigation and considers the specific elements to represent the desirable sequence of steps in the

mitigation planning process. Accordingly, we maintain that the best way to mitigate for adverse biological impacts is to avoid them altogether.

The document should describe all measures proposed to avoid, minimize, or compensate for impacts to fish and wildlife and their habitats. The measures should be presented in as much detail as possible to allow us to evaluate their probable effectiveness.

Because of their very high value to migratory birds, and their ever-increasing scarcity in California, our mitigation goal for wetlands (including riparian and riverine wetlands) is no net loss of in-kind habitat value or acreage (whichever is greater).

For unavoidable impacts, to determine the mitigation credits available for a given mitigation project, we evaluate what conditions would exist on the mitigation site in the future in the absence of the mitigation actions, and compare those conditions to the conditions we would expect to develop on the site with implementation of the mitigation plan.

Mitigation habitat should be equal to or exceed the quality of the habitat to be affected by the project. Baseline information would need to be gathered at the impact site to be able to quantify this goal in terms of plant species diversity, shrub and tree canopy cover, stems/acre, tree height, etc. The ultimate success of the project should be judged according to these same measurements at the mitigation site.

Criteria should be developed for assessing the progress of the project during its developmental stages as well. Assessment criteria should include rates of plant growth, plant health, and evidence of natural reproduction. Success criteria should be geared toward equaling or exceeding the quality of the highest quality habitat to be affected. In other words, the mitigation effort would be deemed a success in relation to this goal if the mitigation site met or exceeded habitat measurements at a "model" site (plant cover, density, species diversity, etc.).

The plan should present the proposed ground elevations at the mitigation site, along with elevations in the adjacent areas. A comparison of the soils of the proposed mitigation and adjacent areas should also be included in the plan, and a determination made as to the suitability of the soils to support habitats consistent with the mitigation goals.

Because wetland ecosystems are driven by suitable hydrological conditions, additional information must be developed on the predicted hydrology of the mitigation site. The plan should describe the depth of the water table, and the frequency, duration, areal extent, and depth of flooding which would occur on the site. The hydrologic information should include an analysis of extreme conditions (drought, flooding) as well as typical conditions.

The plan must include a time frame for implementing the mitigation in relation to the proposed project. We recommend that mitigation be initiated prior to the onset of construction. If there will be a substantial time lag between project construction and completion of the mitigation, a net loss of habitat

values would result, and more mitigation would be required to offset this loss.

Generally, monitoring of the mitigation site should occur annually for at least the first five years, biennially for years 6 through 11, and every five years thereafter until the mitigation has met all success criteria. Remediation efforts and additional monitoring should occur if success criteria are not met during the first five years. Some projects will require monitoring throughout the life of the project. Reports should be prepared after each monitoring session.

The plan should require the preparation of "as-built" plans. Such plans provide valuable information, especially if the mitigation effort fails. Similarly, a "time-zero" report should be mandated. This report would describe exactly what was done during the construction of the mitigation project, what problems were encountered, and what corrections or modifications to the plans were undertaken.

The plan should detail how the site is to be maintained during the mitigation establishment period, and how long the establishment period will be. It will also be important to note what entity will perform the maintenance activities, and what entity will ultimately own and manage the site. In addition, a mechanism to fund the maintenance and management of the site should be established and identified. A permanent easement should be placed on the property used for the mitigation that would preclude incompatible activities on the site in perpetuity.

Finally, in some cases, a performance bond may be required as part of the mitigation plan. The amount of the bond should be sufficient to cover the costs of designing and implementing an adequate mitigation plan (and purchasing land if needed) should the proposed plan not succeed.

Reference

- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. FWS/OBS-79/31. U.S. Fish and Wildlife Service, Washington, D.C. 103 pp.

DEPARTMENT OF FISH AND GAME

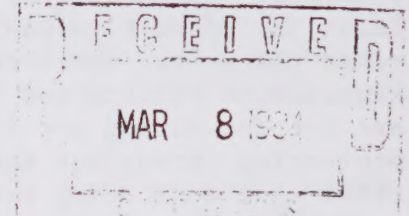
POST OFFICE BOX 47

YOUNTVILLE, CALIFORNIA 94599

(707) 944-5500



March 17, 1994



Mr. Gary Hembree
Community and Business
Development Director
City of Hercules
111 Civic Drive
Hercules, California 94547

Dear Mr. Hembree:

Land Use and Circulation Elements Update,
Hercules General Plan, and Related Land Use
Amendments to the Hercules Redevelopment Project Area

Department of Fish and Game personnel have reviewed the subject project in Hercules, Contra Costa County. Due to personnel and time limitations for project review, we are unable to identify specific concerns to be addressed in the Draft Environmental Impact Report (DEIR).

The DEIR should address all potential impacts to biotic resources and mitigation measures, as well as alternatives which would avoid impacts. We request that subsequent documents related to this project be submitted for our review.

The Department recommends the following overall measures to lessen or minimize impacts.

1. Avoidance or minimization of impacts to important wildlife habitats; i. e., oak woodland, wetlands, streams, riparian corridor, and habitat for sensitive plant and animal species. The Department recommends a 100-foot buffer along stream corridors and around wetlands to maintain wildlife values.
2. Revegetation using native species.
3. Conformance with the Department Wetland Policy which requires no net loss of either wetland acreage or habitat value for unavoidable impacts.
4. Surveys for sensitive plant species should be conducted in accordance with the Department's survey guidelines enclosed.

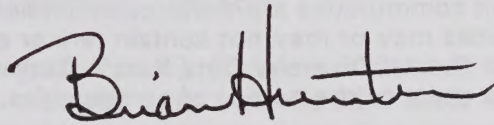
Mr. Gary Hembree
March 17, 1994
Page Two

The Department has direct jurisdiction under Fish and Game Code sections 1601-03 in regard to any proposed activities that would divert or obstruct the natural flow or change the bed, channel, or bank of any stream. We recommend early consultation since modification of the proposed project may be required to avoid impacts to fish and wildlife resources. Formal notification under Fish and Game Code Section 1603 should be made after all other permits and certifications have been obtained. Work cannot be initiated until a streambed alteration agreement is executed.

The U. S. Army Corps of Engineers also has jurisdiction over the discharge of fill to streams and wetlands under Section 404 of the Clean Water Act. We recommend that the Corps be contacted to determine if they have jurisdiction and require a permit.

If you have any questions concerning our comments, please contact Carl Wilcox, Environmental Services Supervisor, at (707) 944-5525.

Sincerely,



Brian Hunter
Regional Manager
Region 3

Enclosure

State of California
THE RESOURCES AGENCY
Department of Fish and Game
May 4, 1984

GUIDELINES FOR ASSESSING THE EFFECTS OF PROPOSED
DEVELOPMENTS ON RARE AND ENDANGERED PLANTS AND PLANT COMMUNITIES

The following recommendations are intended to help those who prepare and review environmental documents determine when a botanical survey is needed, who should be considered qualified to conduct such surveys, how field surveys should be conducted and what information should be contained in the survey report.

1. Botanical surveys that are conducted to determine the environmental effects of a proposed development should be directed to all rare and endangered plants and plant communities. Rare and endangered plants are not necessarily limited to those species which have been "listed" by state and federal agencies but should include any species that, based on all available data, can be shown to be rare and/or endangered under the following definitions.

A species, subspecies or variety of plant is "endangered" when the prospects of its survival and reproduction are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition or disease. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.

Rare plant communities are those communities that are of highly limited distribution. These communities may or may not contain rare or endangered species. The most current version of the California Natural Diversity Data Base's Outline of Terrestrial Communities in California may be used as a guide to the names of communities.

2. It is appropriate to conduct a botanical field survey to determine if, or the extent that, rare plants will be affected by a proposed project when:
 - a. Based on an initial biological assessment, it appears that the project may damage potential rare plant habitat;
 - b. Rare plants have historically been identified on the project site, but adequate information for impact assessment is lacking; or
 - c. No initial biological assessment has been conducted and it is unknown whether or not rare plants or their habitat exist on the site.
3. Botanical consultants should be selected on the basis of possession of the following qualifications (in order of importance):
 - a. Experience as a botanical field investigator with experience in field sampling design and field methods;
 - b. Taxonomic experience and a knowledge of plant ecology;
 - c. Familiarity with the plants of the area, including rare species; and
 - d. Familiarity with the appropriate state and federal statutes related to rare plants and plant collecting.
4. Field surveys should be conducted in a manner that will locate any rare or endangered species that may be present. Specifically, rare or endangered plant surveys should be:
 - a. Conducted at the proper time of year when rare or endangered species are both "evident" and identifiable. Field surveys should be scheduled (1) to coincide with known flowering periods, and/or (2) during periods of phenological development that are necessary to identify the plant species of concern.

DEPARTMENT OF FISH AND GAME

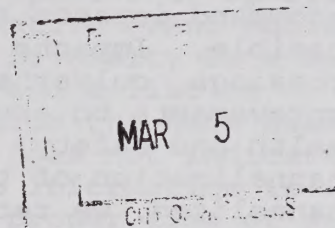
POST OFFICE BOX 47

YOUNTVILLE, CALIFORNIA 94599

(707) 944-5500



March 18, 1994



Mr. Gary Hembree
Community and Business
Development Director
City of Hercules
111 Civic Drive
Hercules, California 94547

Dear Mr. Hembree:

Notice of Preparation (NOP) of an
Environmental Impact Report (EIR) City of Hercules
General Plan Update and Land Use and
Circulation Elements Update

Department of Fish and Game personnel have reviewed the NOP for the above-named project. We recognize the Draft EIR will be written on a program level with subsequent review for specific projects. However, we recommend the DEIR contain as much specific information as feasible in order to identify resources, impacts, and mitigation measures for the area as a whole rather than on a project-by-project basis. Regional planning is particularly important when considering wide-ranging and listed species and should identify one or more large areas to be set aside as mitigation rather than expecting each project to attempt to mitigate within its boundaries. Not only would this benefit the resource, it would provide important biologic and economic information to applicants regarding acceptable mitigation.

The DEIR should contain a complete description and map of the habitats in the planning area, including acreages. Impacts to habitats as a result of the project, and mitigation measures necessary to offset those impacts, should be identified and discussed. We recommend project applicants be required to offset development impacts by setting aside or acquiring an equal number of acres for open space. Alternately, the City could create a program requiring in-lieu fees for each acre developed to be used to purchase lands for permanent open space and wildlife habitat.

Mr. Gary Hembree
March 22, 1994
Page Two

It is the policy of this Department that a project should cause no net loss of either wetland acreage or habitat value. We recommend impacts to any creeks and/or wetlands be avoided where possible. Impacts would include, but are not limited to, road crossings, culverts, channelization, and rip rap. If improvements to any creek must be made for reasons of public health and safety, retention basins would be preferable to channelization of the entire stream. In areas which must be channelized, we recommend the channel be oversized in order to allow for vegetation along both banks. Unavoidable impacts should be identified and mitigation provided for in the document. Vegetation removed along any creek should be replaced on a 3:1 in-kind basis using native species.

The Department recommends a policy statement be included requiring minimum 100-foot buffer, measured outward from the top of each creekbank, be established to protect creeks and their vegetation, and provide a travel corridor for wildlife. No roads, buildings, or yards should be permitted within the buffer. Pedestrian trails should be located along the outside edge of the riparian vegetation.

Any work within the banks of any creek, including road crossings and culverts, will require a streambed alteration agreement with this Department. The Department has direct jurisdiction under Fish and Game Code sections 1601-03 in regard to any proposed activities that would divert or obstruct the natural flow or change the bed, channel or bank of any stream. We recommend early consultation since modification of the proposed project may be required to avoid impacts to fish and wildlife resources. Formal notification of proposed channel modifications under Fish and Game Code Section 1603 should be made after all other permits and certifications have been obtained. Work cannot be initiated until a streambed alteration agreement is executed.

The U. S. Army Corps of Engineers has jurisdiction over the discharge of fill to wetlands and streams under Section 404 of the Clean Water Act. If work is to be done in any creeks or wetlands, we recommend the Corps be notified to determine if they have jurisdiction and require a permit.

The DEIR should discuss the amounts and effects of urban runoff and how these can be mitigated. A policy should be included to require installation and maintenance of oil/grease separators in the storm drain system of parking lots with 50 or more cars. Annual maintenance of the separators, as well as a sweeping program for the lot itself should be required.

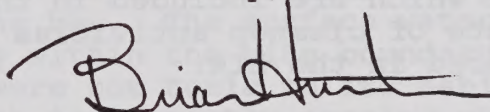
Mr. Gary Hembree
March 22, 1994
Page Three

Surveys should be conducted for any rare, threatened, or endangered species which may exist within the planning area. Federal candidate species, wildlife listed as species of special concern, and plants listed by the California Native Plant Society should be included. The Department's Natural Diversity Data Base should be consulted for any known occurrences and a list of species found in the general area. A report from the Data Base which lists no findings for the planning area does not indicate these species do not exist there, only that no information is in the file. Surveys should be conducted at the proper time of year to locate any identified species. Impacts to these species and their habitats should be avoided. Impacts which are unavoidable should be identified and appropriate mitigation provided.

Survey results and specific mitigation measures must be included in the document. Surveys to be conducted at a later time, or mitigation measures to be identified at some future time, are not acceptable. It has been determined in a court ruling that such studies and mitigation measures would be improperly exempted from the process of public and governmental scrutiny which is required under the California Environmental Quality Act (CEQA). A document which requests future studies or future identification of mitigation will be considered inadequate.

If you have any questions or concerns regarding any of the above, please contact Caitlin Bean, Environmental Specialist, at (707) 944-5570; or Carl Wilcox, Environmental Services Supervisor, at (707) 944-5525.

Sincerely,

A handwritten signature in dark ink, appearing to read "Brian Hunter", with a stylized, flowing script.

Brian Hunter
Regional Manager
Region 3

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

REGION 2
700 HEINZ AVE., SUITE 200
BERKELEY, CA 94710-2737



April 11, 1994

Mr. Gary Hembree
Community and Business Development Director
City of Hercules
111 Civic Drive
Hercules, California 94547

Dear Mr. Hembree:

**NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT -
LAND USE AND CIRCULATION ELEMENTS UPDATE, HERCULES GENERAL PLAN,
AND RELATED LAND USE AMENDMENTS TO THE HERCULES REDEVELOPMENT
PROJECT AREA**

Thank you for the opportunity to comment on this Notice of Preparation (received March 10, 1994). The Department of Toxic Substances Control (Department) is responsible for regulating the management of hazardous wastes in California. The Environmental Impact Report (EIR) should discuss previous uses of the entire project area. Some of these uses resulted in soil contamination at some parcels within the project area.

As you are aware, the Department is the lead agency for the investigation and cleanup of two hazardous waste sites in Hercules which are included in the state superfund list. These sites are Hercules Incorporated and Hercules Properties, Ltd., both of which are included in the project area. The following is an update of cleanup activities at these sites which should be considered in the EIR.

Hercules Incorporated (HI) Site

The HI site is located at San Pablo Avenue at the end of Sycamore Avenue and is included in Parcels 4 and 5 (Notice of Preparation of an EIR, Initial Study, Figure 2). Contaminants detected in soil at this site were metals (primarily lead and zinc) and nitroaromatic hydrocarbons (dinitrobenzene, dinitrotoluene and trinitrotoluene). The final cleanup of this site was completed and certified by the Department on November 25, 1992. Contaminated soils were excavated and disposed of offsite. With the exception of the wetlands area in Parcel 4, the entire site was remediated to residential standards, therefore, land use is not limited. Enclosed is a figure of the site showing the wetlands area. Separate cleanup levels for nitroaromatic hydrocarbons for the wetlands area were



Mr. Gary Hembree
April 11, 1994
Page Two

developed based on the exposure of children to these chemicals in the wetlands. These cleanup levels were used for the remediation and restoration of the wetlands area with the approval of the U.S. Corps of Engineers and the Department of Fish and Game. An approved operation and maintenance plan is being implemented to ensure restoration of the wetlands and its habitat. Additionally, a deed restriction for the wetlands area was recorded with the County Recorder's Office on October 13, 1992. The deed restriction was placed to ensure that there would be no disturbance or filling of the wetlands.

Hercules Properties, Ltd. (HPL) Site

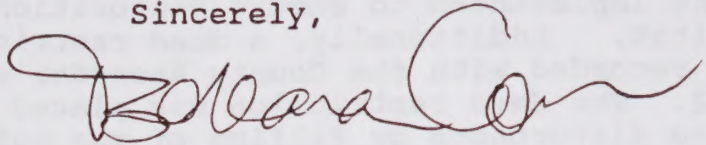
The HPL site is located at 560 Railroad Avenue and is included in Parcels 1 and 2 (Initial Study, Figure 2). Soil contaminants detected at this site include metals (arsenic, cadmium, chromium, mercury, lead and nickel), polynuclear hydrocarbons and petroleum hydrocarbons. The Draft Remedial Action Plan (RAP) for the final cleanup of soils at this site has been approved by the Department and is currently undergoing a 30-day comment period which ends April 22, 1994. The Draft RAP proposes cleanup of soils in Parcel 1 to residential standards (unrestricted land use) and Parcel 2 to industrial standards (restricted land use). For Parcel 2, a deed restriction will be negotiated with the property owners and will be recorded with the County. Land use of Parcel 2 will be limited to industrial and/or commercial which will be specified in the deed restriction. However, not all areas of Parcels 1 and 2 require remediation. Enclosed is Figure 3-2 of the Draft RAP which shows the areal extent of contamination based on the residential and industrial cleanup standards specifically established for this site. Additionally, metals were also detected in groundwater, surface water and sediments at this site. A groundwater monitoring program is being developed to monitor the potential migration of the metals to the bay. The surface water and sediments along San Pablo Bay within the site boundary showed that the detected chemicals were not toxic to its habitat. Investigation of Refugio Creek is currently ongoing which consists of assessment of the potential toxicity of the metals to aquatic organisms.

In addition to the above sites, the Department has been involved in the remediation of two parcels shown in Figure 2 of the Initial Study. These parcels were known as the Gelsar (Parcel 3) and BioRad (Parcel 6) sites and contain the same contaminants as the Hercules Incorporated site. The Gelsar site was remediated to industrial standards and the BioRad site to residential standards. These sites were remediated in the early 1980's and are not listed in the state superfund list.

Mr. Gary Hembree
April 11, 1994
Page Three

The Department's current project manager for the HI and HPL sites is Ms. Remedios Sunga. Please contact her at (510) 540-3825, if you have any questions, comments, or need additional information regarding these sites.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Barbara Coler', with a stylized, flowing script.

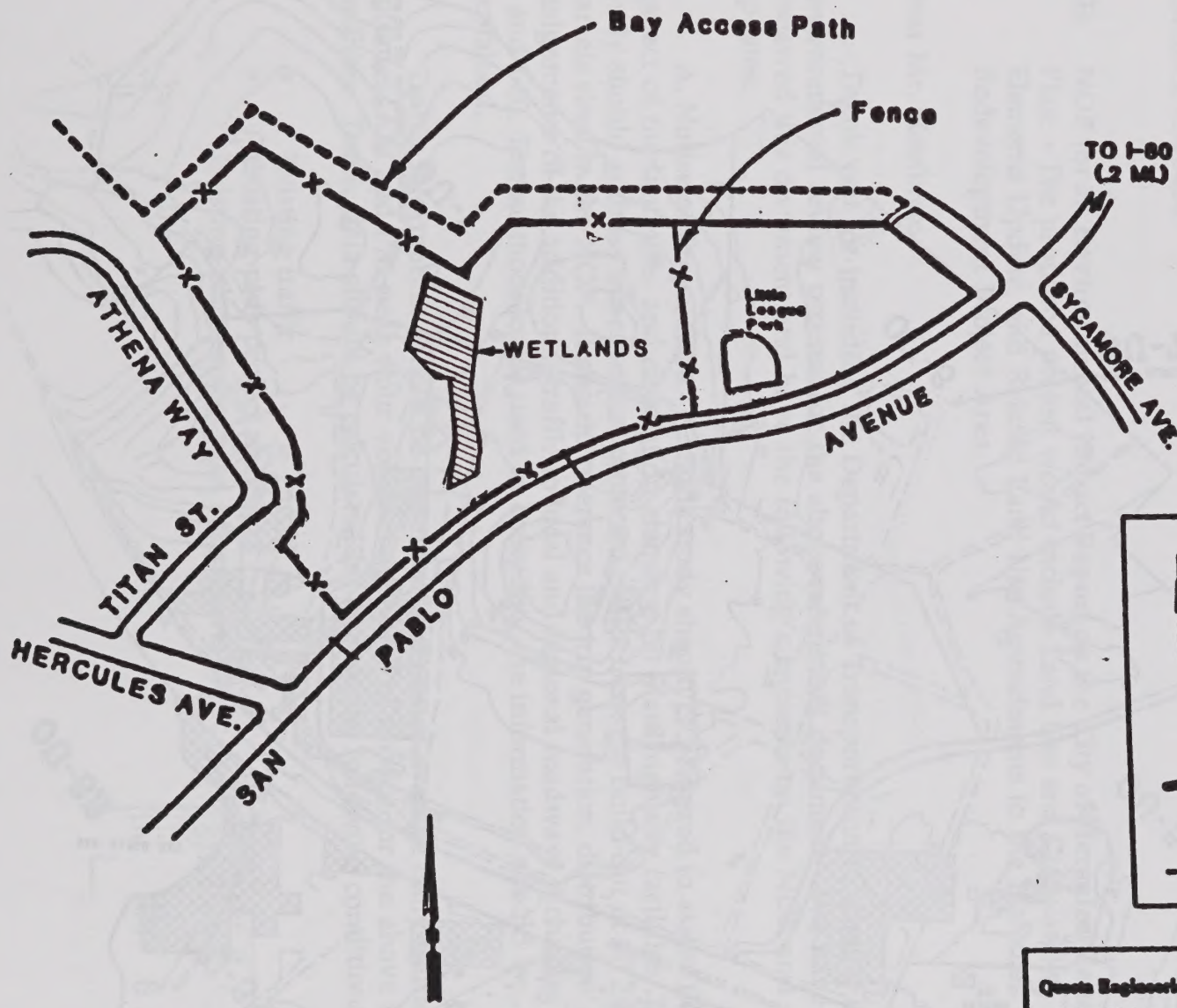
Barbara Coler
Unit Chief
Site Mitigation Branch

Enclosures

cc: (without enclosures)

Mr. Guenther W. Moskat
Department of Toxic Substances Control
Office of Policy and Environmental Analysis
Planning and Environmental Analysis Section
400 P Street, 4th Floor
P.O. Box 806
Sacramento, California 95812-0806

Ms. Marilyn Leuck, City Manager
City of Hercules
111 Civic Drive
Hercules, California 94547



TO I-80
(2 MI.)

BYCAMORE AVE.

AVENUE

WETLANDS

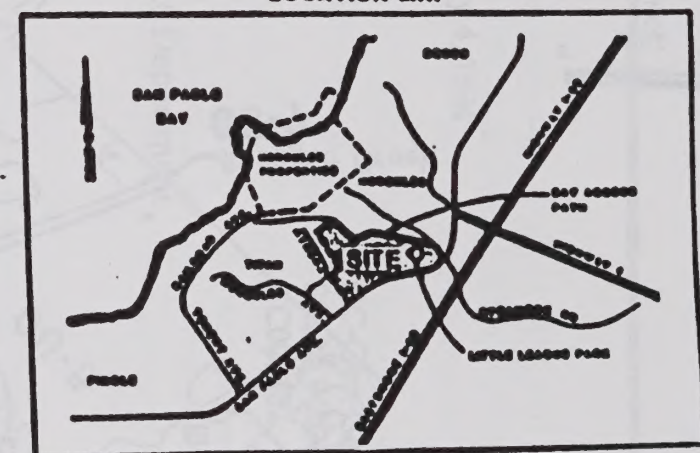
Little League Park

Bay Access Path

Fence

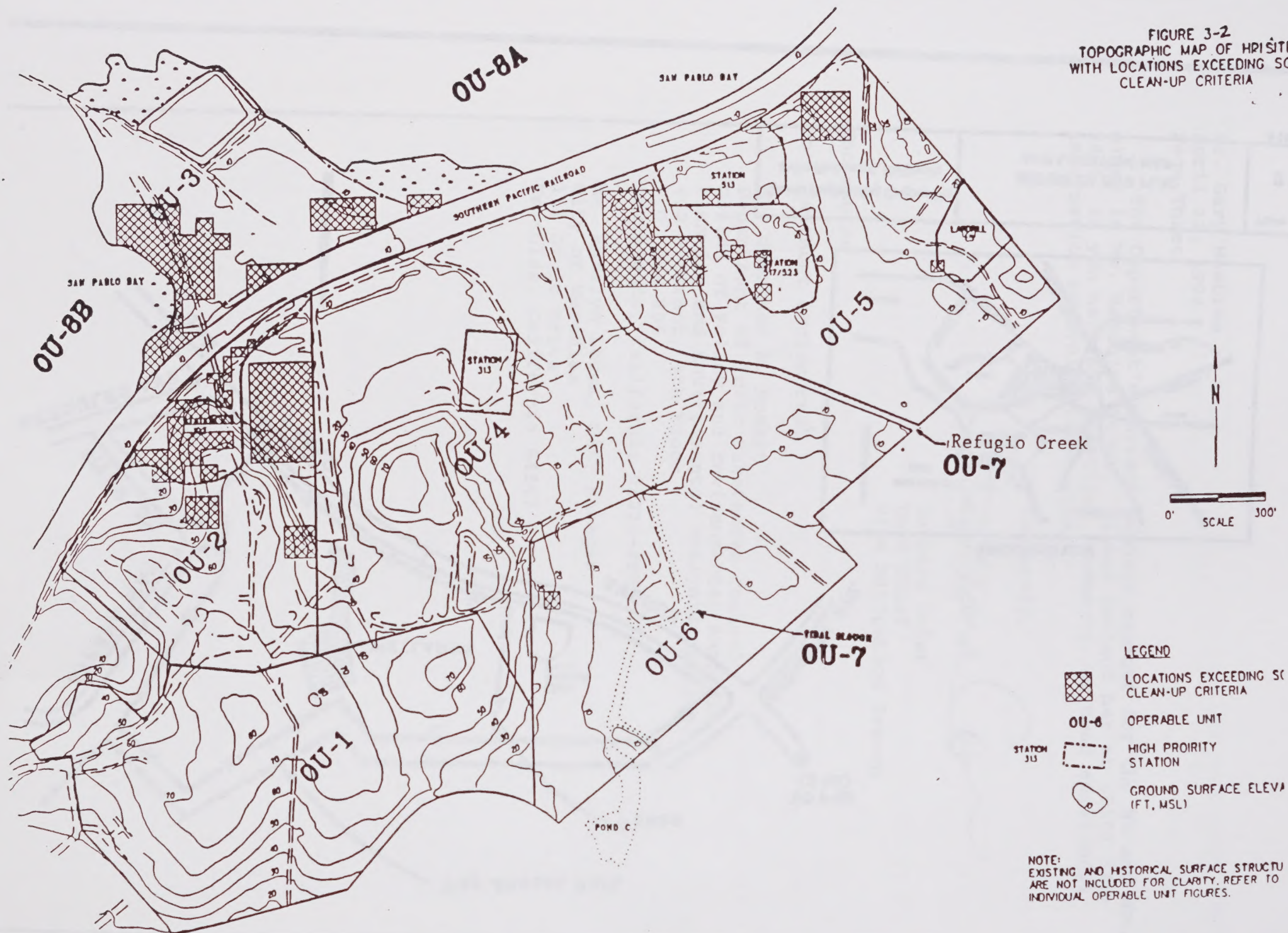
HERCULES AVE.
SAN
PABLO
TITAN ST.
ATHENA WAY

LOCATION MAP



Quota Engineering Corporation Point Richmond, California	HERCULES SITE PLAN AND LOCATION MAP	Figure 2
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FIGURE 3-2
TOPOGRAPHIC MAP OF HRSITE
WITH LOCATIONS EXCEEDING SO
CLEAN-UP CRITERIA



DEPARTMENT OF TRANSPORTATION

BOX 23660
OAKLAND, CA 94623-0660
(510) 286-4444
TDD (510) 286-4454



May 4, 1994

CC-Gen-Gen
SCH# 94033034
CC000102

Mr. Gary Hembree, Director
Community and Business Development Department
111 Civic Drive
Hercules, CA 94547

RE: NOP for an Environmental Impact Report on the City of Hercules General Plan - The proposed project would include Land Use and Circulation Elements Update, and Related Land Use Amendments to the Hercules Redevelopment Project Area.

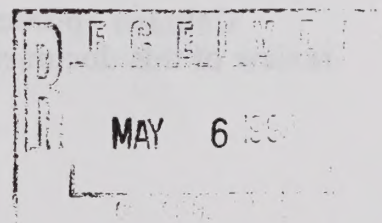
Dear Mr. Hembree:

Thank you for including the Department of Transportation (Caltrans) in the environmental review process for the above-referenced document. We have reviewed this document and have the following comments on the NOP and updates:

A. Notice of Preparation - A traffic study should be prepared to assess the impact of the land-use and circulation elements on State highway facilities. The study should address the effects of projected traffic from the build-out of all 24 parcels cited in the NOP. It should reference the trip generation, distribution and assignments of the additional traffic to local and regional roadways including Route 4 and I-80. The methodologies used in compiling the information should be explained.

Traffic information should be presented in terms of average daily traffic volumes, AM and PM peak hour volumes and level of service for the above listed facilities. Traffic data should be calculated for each of the following conditions:

- Existing traffic
- Existing plus project traffic
- Existing plus project plus cumulative traffic



Calculation of cumulative traffic volumes should consider all traffic generating development that would affect the facilities evaluated, and should not be limited to projects under the jurisdiction of the lead agency.

Diagrams illustrating traffic distribution and assignment, and a map showing the locations of approved projects in the vicinity should be included.

The traffic study must include adequate mitigation for impacts to State highway facilities. Mitigation measures considered should include highway and non-highway improvements. Special attention should be given to the development of alternative solutions to circulation problems which do not rely on increased highway construction.

Additionally, all mitigation proposed should be fully discussed in the environmental document. This discussion should include but not be limited to the following areas:

- Cost
- Financing
- Scheduling
- Lead agency monitoring
- Implementation responsibilities

B. Land Use and Circulation Elements Update -

- The General Plan should show the Hercules Sphere of Influence and indicate the location and boundaries of the Hercules Redevelopment Project Area. Figure 1 on page 6 should reflect the expansion of the City of Hercules city Limits to include the Franklin Canyon Annex. The City Sphere of Influence should also be delineated in this figure. Traffic generated by the Franklin Canyon Project should be included in the scope of the Circulation Element Update.
- The scope and content of the EIR should acknowledge that the proposed westbound on and off-ramps for the Willow Avenue Overcrossing are temporary ramps and are to be modified or removed after the proposed Claeys Interchange is constructed.
- Figure 2 on page 7 should indicate the proposed Willow Avenue Overcrossing and the proposed eastbound Bayberry on-ramp.

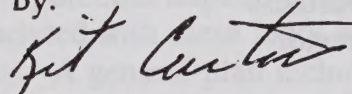
Caltrans appreciates the opportunity to participate in the environmental review of this document and looks forward to working with the City of Hercules to

integrate land use planning and the development of the I-80/Route 4 Interchange. If you have further questions, please feel free to contact Melinda Pagaduan of my staff at (510) 286-5544.

Sincerely,

JOE BROWNE
District Director

By:

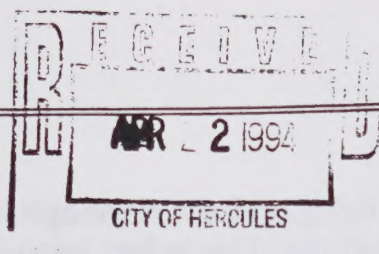


KIT CURTISS
Senior Transportation Planner

cc: Mike Chiriatti, State Clearinghouse
Craig Goldblatt, MTC
Patricia Perry, ABAG

STATE LANDS COMMISSION

LEO T. McCARTHY, *Lieutenant Governor*
GRAY DAVIS, *Controller*
THOMAS W. HAYES, *Director of Finance*



EXECUTIVE OFFICE
1807 - 13th Street
Sacramento, CA 95814

CHARLES WARREN
Executive Officer

April 20, 1994

File Ref.: SCH #94033034

Mr. Gary Hembree
Community and Business
Development Director
City of Hercules
111 Civic Drive
Hercules, CA 94547

Dear Mr. Hembree:

Staff of the State Lands Commission (SLC) has reviewed the Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the City of Hercules' Land Use and Circulation Elements Update, Hercules General Plan, and Related Land Use Amendments to the Hercules Redevelopment Project Area, SCH #94033034. Based on this review, we offer the following comments.

The State acquired sovereign ownership of all tidelands and submerged lands and beds of navigable waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all the people of the State for statewide Public Trust purposes which include waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. The landward boundaries of the State's sovereign interests are generally based upon the ordinary high water marks of these waterways as they last naturally existed. Thus, such boundaries may not be readily apparent from present day site inspections. The State's sovereign interests are under the jurisdiction of the SLC.

The State's sovereign interests within the planning area consist generally of fee ownership and/or a public trust easement over any existing and/or historic tidelands and submerged lands including, but not limited to, the San Pablo Bay. Use of lands underlying the State's easement may not be inconsistent with Public Trust needs of the area. While under current policy the SLC does not require a lease or permit for the use of this easement, the SLC may wish to determine if a project is consistent with the Trust. In addition, should any project or its components include the use of sovereign lands of the State of California, such use will be subject to authorization by the SLC under the California Environmental Quality Act and the Public Trust Doctrine.

The SLC is extremely concerned about the natural resources, public access and recreational opportunities of lands under its jurisdiction. We are concerned that the environmental review and decision-making processes of all agencies take into account the impacts that projects may have on public trust resources in and along the State's waterways.

The City of Hercules should consider the potential impacts of this plan on State-owned lands. Significant biological values associated with these lands should be protected from direct as well as indirect impacts. A general plan includes goals and objectives for long-range planning, specific policies and standards to support stated goals and seven required elements -- land use, circulation, housing, safety, noise, open space and conservation. Three of the elements, land use, open space and conservation, have direct relevance to the management of public trust lands and resources.

Local governments in completing periodic general plan or element updates should incorporate specific provisions and guidelines, consistent with the State's mandate, for the planning and management of lands adjacent to these public trust lands and resources. The City should be aware that local General Plan designations and zoning ordinances are not binding on the SLC. Although the Commission coordinates with local government to the maximum extent feasible and appreciates the utility of plans and zoning as expressions of a city or county's land use preferences, the Commission is guided by applicable constitutional, statutory and case law in determining appropriate land uses over lands subject to the public trust. However, the SLC recognizes the value of cooperative planning initiatives to develop appropriate uses and protection for these lands as an advisory measure to project proponents.

Suggested planning approaches by which public trust resources and values might be protected and enhanced may include, but are not limited to, the following. Although we recognize that the City's efforts are focused on the preparation of an EIR, the policies suggested may serve as potential mitigation to relevant potentially significant environmental impacts that may be identified by the EIR.

Public Trust Resource Management Policies

- Fishing: Facilities serving recreational fishing shall be identified and shall be protected and, where feasible, upgraded.
- Marinas and Recreational Boating: Allow new recreational commercial and marina developments only to the extent that, based upon a carrying capacity study, no significant negative impacts to public trust values, human, ecological or water quality, will result.

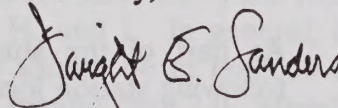
- Scenic Resources: The scenic resources of the public trust lands and resources shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect scenic views associated with Public Trust lands and resources.
- Flood Control: Flood control structures or improvements shall be consistent with a policy of no net loss in quality or quantity of aquatic habitat or riparian, seasonal and permanent wetlands.
- Public Access Provisions: Require public access to and along the shoreline of navigable waterways in all new developments adjacent to such waterways consistent with statutory and constitutional requirements (Government Code Section 66478.1, et seq.; Article X, Section 4 of the California Constitution; and Sections 6210.4 and 6210.5 of the Public Resources Code). A suggested public access plan would include the following provisions:
 - existing and proposed future accessways which are specified based upon access needs, historic sloughs and other Public Trust lands, specifically identifying accessways with other trail systems including urban paths to ensure linkages;
 - dedication requirements to guarantee permanent access (e.g. dedication of fee, easement or deed restriction);
 - a maintenance and operations plan specifying how accessways shall be maintained and operated and by what agencies;
 - a priority acquisition element specifying the location of accessways for acquisition by in-lieu fees; and
 - accessway standards consistent with state and federal law and state standards of agencies accepting jurisdiction for such accessways.
- Wetlands: All development shall be consistent with a comprehensive wetlands management plan. A suggested plan would include the following provisions:
 - a policy of no net loss in quantity or quality of seasonal and permanent wetlands and sensitive aquatic and riparian habitat based on their ecological characteristics;

Mr. Gary Hembree
April 20, 1994
Page Four

- a policy of avoidance of aquatic, wetland and riparian areas as the preferred method of "mitigation";
- a policy of clustering houses and other structures when appropriate to minimize or avoid impacts to aquatic, wetland and riparian habitat areas;
- when it is infeasible to avoid impacts on aquatic, wetlands, or riparian habitat or values, a policy that all proposed development shall replace these values and acres lost due to development with functionally equivalent values and acres; where feasible, lost aquatic, wetland and riparian habitat values and acreage shall be replaced on the project site; and
- prior to project approval, where it is infeasible for a development to occur without impacting aquatic, wetland, and riparian habitat, prepare an Aquatic/Wetland/Riparian Mitigation Plan which shall be reviewed by the appropriate state and federal resource agencies: State Lands Commission, Department of Fish and Game, U.S. Fish and Wildlife Service, National Marine Fisheries, Army Corps of Engineers, and the Environmental Protection Agency. The Mitigation Plan shall include at a minimum the following information: (1) the required minimum ratio of acres lost to acres restored based on like habitat values; (2) identification of wetland linkages/corridors; (3) identification of appropriate preserves and refuges; (4) identification of wetland mitigation areas, if any; (5) specification of adequate setbacks from habitat areas; and (6) specific monitoring and maintenance requirements for mitigation plans.

We appreciate the opportunity to comment and look forward to our review of the draft document. If you have any questions, please contact Dave Plummer at (916) 322-0595 or Elizabeth Patterson at (916) 322-7829.

Sincerely,



Dwight E. Sanders
Chief, Division of Environmental
Planning and Management

cc: Mary Griggs
Dave Plummer
Elizabeth Patterson
OPR



BAY AREA RAPID TRANSIT DISTRICT
800 Madison Street - Lake Merritt Station
P.O. Box 12688
Oakland, CA 94604-2688
Telephone (510) 464-6000

March 30, 1994

APR 1 1994

MARGARET K. PRYOR
PRESIDENT

MICHAEL BERNICK
VICE-PRESIDENT

FRANK J. WILSON
GENERAL MANAGER

Mr. Gary Hembree
Community and Business Development Director
City of Hercules
111 Civic Drive
Hercules, California 94547

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WILFRED T. USSERY
7TH DISTRICT

JAMES FANG
8TH DISTRICT

MICHAEL BERNICK
9TH DISTRICT

Subject: Comments on the Notice of Preparation for the City of Hercules General Plan Update Environmental Impact Report and Related Land Use Amendments to the Redevelopment Project Area

Dear Mr. Hembree:

Thank you for the opportunity to respond to the Notice of Preparation (NOP) for the City of Hercules General Plan Update Environmental Impact Report and Related Land Use Amendments to the Redevelopment Project Area (EIR). BART Extension Planning and Property Development Departments have reviewed the NOP and have the following comments and concerns:

- 1) The following BART Extension Planning projects should be considered in the document:
 - Extension of BART to West Contra Costa County. BART completed the *West Contra Costa Extension Alignment Study* in November 1992. The Study was a preliminary planning analysis that identified a range of feasible BART alignments in the I-80 corridor. BART is currently in the process of advancing the planning efforts necessary to perform the subsequent studies and environmental analyses to select a preferred alignment in the I-80 corridor.

As part of the study, depending on the proposed alignment, the following station locations were identified:

- Willow Station: In the southwest quadrant of Interstate 80/Willow Avenue;

NOP for the City of Hercules General Plan Update EIR

March 30, 1994

Page 2

- Sycamore West: East of San Pablo Avenue between Sycamore Avenue and John Muir Parkway;
 - Sycamore West: East and west of San Pablo Avenue between Sycamore Avenue and John Muir Parkway; or
 - Sycamore East: East of Interstate 80 along Bayberry Avenue with parking east and west of Interstate 80.
- FasTrak Commuter Rail Proposal. BART is currently developing the FasTrak Commuter Rail Project to provide immediate improvements to existing and future traffic congestion and air quality in the region. The project includes the North Bay Commuter Rail Line, which would use existing Southern Pacific (SP) Railway right-of-way to operate diesel locomotives between Fairfield (Suisun City)/Brentwood and West Oakland. As proposed, this commuter rail service would operate on the SP alignment and would include a potential station site located at the end of Linus Pauling Drive near North Shore Business Park in the City of Hercules.

- 2) BART promotes mixed-use, transit-oriented development at and around potential rail stations. The 1984 BART policy, in part, stipulates:

"The District shall work cooperatively with local jurisdictions,...to promote land use policies which encourage intensive, high quality development on and surrounding station properties."

"The District shall negotiate with local jurisdictions...These negotiations will, to the extent feasible, also address land uses on non-District owned properties surrounding the stations with the aim of encouraging land use patterns supportive of transit."

Zones shown on Figure 2 of the NOP that are affected by the location of a potential transit station include 3, 7, 9, 10, 11, F, H, and I. In general, it is suggested that around station sites, residential densities should be at least 50 units/acre and that General Commercial areas have an FAR greater than 1.0. Mixed-use developments in station areas should also be encouraged.

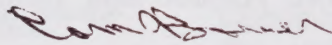
NOP for the City of Hercules General Plan Update EIR

March 30, 1994

Page 3

BART staff is available to work with the City of Hercules on the issues discussed above. If you have any questions or would like additional information on the BART West Contra Costa Extension and **FASTRAK** studies, please call me at (510) 287-4863.

Sincerely,



for

Karita Zimmerman

Manager, Environmental Compliance

cc: Marianne Payne
Peter Gertler
David Kutrosky
Beth Walukas



Contra Costa County
FLOOD CONTROL
& Water Conservation District

J. Michael Walford
ex officio Chief Engineer

Milton F. Kubicek, Deputy Chief
255 Glacier Drive, Martinez, CA 94553-4897
Telephone: (510) 313-2000
FAX: (510) 313-2333

March 30, 1994

Gary Hembree, Director
Community & Business Development
City of Hercules
111 Civic Drive
Hercules, CA 94547

File: 97-112

Dear Mr. Hembree:

We have reviewed the Notice of Preparation for an Environmental Impact Report to the Hercules Redevelopment Project Area which was received in our office on March 9, 1994.

We do not have any comments to make at the present time. We do appreciate the opportunity to review plans/documents which involve drainage matters and we welcome continued coordination.

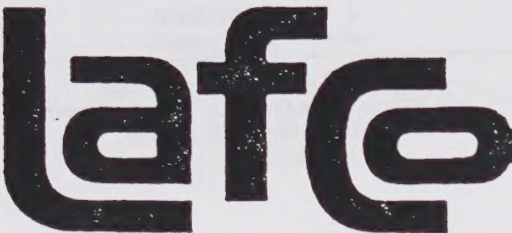
If you have any questions, please contact Joan A. Rushton of our Engineering Staff at 313-2286.

Very truly yours,

Thomas Williams
Associate Civil Engineer
Flood Control Engineering

TW:JAR:kd
g:\fdct\work\He97-112.t3

cc: J. Rushton, Flood Control



CONTRA COSTA COUNTY LOCAL AGENCY FORMATION COMMISSION
651 Pine Street, Eighth Floor • Martinez, CA 94553
(510) 646-4090 • FAX (510) 646-2240

EXECUTIVE OFFICER
ANNAMARIA PERRELLA

MEMBERS

Frances Greene <i>Public Member</i>	Jeff Smith <i>County Supervisor</i>
Michael Menesini <i>Martinez City Council</i>	Tom Torlakson <i>County Supervisor</i>
Gayle B. Uilkema <i>Lafayette City Council</i>	

ALTERNATE MEMBERS

Gayle Bishop <i>County Supervisor</i>
Joseph Canclamilla <i>Pittsburg City Council</i>
Martin B. McNair <i>Public Member</i>

March 10, 1994

Gary Hembree
Community and Business Development Director
City of Hercules
111 Civic Drive
Hercules, CA 94547

Re: Notice of Preparation of an Environmental Impact Report

Dear Mr. Hembree:

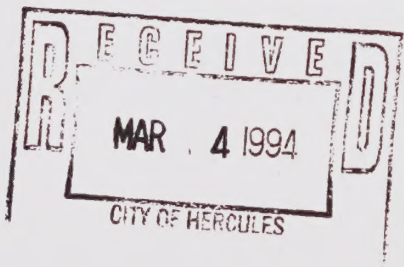
Thank you for requesting LAFCO's input for the subject project which includes Land Use and Circulation Elements Update, Hercules General Plan, and Related Land Use Amendments to the Hercules Redevelopment Project Area.

In reviewing the governmental services section of the Initial Study, it appears that LAFCO will have no discretionary approval authority over any phase of the project in tandem with, or separate from, that of the City. Therefore, no response is necessary.

Yours truly,

Annamaria Perrella
Annamaria Perrella
Executive Officer

cc: LAFC Commissioners



EAST BAY REGIONAL PARK DISTRICT

April 8, 1994

BOARD OF DIRECTORS

Jocelyn Combs

President

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Pat O'Brien

General Manager

Mr. Gary Hembree
Planning Department
111 Civic Drive
Hercules, CA 94547

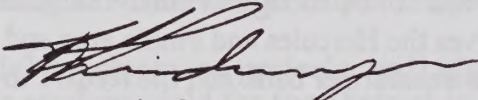
SUBJECT: EIR FOR THE UPDATES OF
THE HERCULES GENERAL PLAN

Dear Mr. Hembree:

The East Bay Regional Park District has reviewed the Notice of Preparation and Initial Study for the subject EIR. The District requests that the EIR specifically address whether the project would substantially impede or preclude the development of the District's planned Shoreline Trail.

The contact person for the subject EIR is the undersigned who may be reached at 635-0138, extension 2622.

Very truly yours,



T.H. Lindenmeyer
Environmental Specialist

Pacific Gas and Electric Company

East Bay Division
4801 Oakport Street
Oakland, CA 94601

March 17, 1994



Mr. Gary Hembree
Community and Business Development Director
City of Hercules
111 Civic Drive
Hercules, California 94547

MAR 2

SUBJECT: Notice of Preparation of an Environmental Impact Report

Dear Mr. Hembree

This is to provide my response and comment on the above subject in regards to the supply of electric power to the proposed development. Specifically, please refer to page 21, item #16, Utilities, on the Initial Study that you sent us. On item (a), Power or natural gas, my comment is as follows:

In order to serve the load demand in the proposed developments, distribution lines will have to be installed, extended and/or upgraded. In addition, a second transformer bank will have to be installed at our Franklin substation because the existing capacity of this substation will not be enough. Franklin substation is located at Bayberry Ave. and it serves the Hercules and Pinole area and part of Crockett. The installation of the transformer bank and the feeders to the developments will require a substantial capital investment by PG&E.

If you have any questions, you can contact me at (510) 437-2076.

Very truly yours,

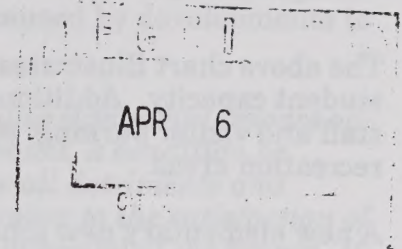

JOSE M. GABRIEL
Distribution Engineer (Electric)

JMG:jg

West Contra Costa Unified School District

1108 Bissell Avenue
P.O.Box 4014
Richmond, California 94801-3135
Telephone (510) 234-3825

Herbert M. Cole, Jr., Ed. D.
Superintendent of Schools



April 18, 1994

Gary Hembree
Community and Business Development Director
City of Hercules
111 Civic Drive
Hercules, California 94547

Subject: **Comments for Land Use and Circulation Element for the
Hercules General Plan, and Related Land Use Amendments to the
Hercules Redevelopment Project Area**

Dear Mr. Hembree:

The West Contra Costa Unified School District/formerly Richmond Unified School District, appreciates the opportunity to work with the City of Hercules, Community and Business Development to provide its residents the best educational facilities and programs possible. Please consider this correspondence the official response from the West Contra Costa Unified School District to your request for comments for the Hercules Housing Environmental Impact Report.

New residential development projects will significantly impact the schools in Hercules. The student yield for the District is:

Elementary: .44 Junior high: .10 High school: .20

Please refer to Appendix A for Criteria for Site Selection, and Appendix B for Elementary, Junior, and Senior High Facility Construction Costs.

The current capacities and enrollment of current schools serving the Hercules students are as follows:

School	Capacity	Enrollment
Collins Elementary	458	682
Ellerhorst	601	458
Shannon	372	340
Stewart	467	491
Pinole Middle	583	1,005
Pinole Valley High	1,909	2,139

Please note that portables leased or leased purchased as of 9/30/93 have not been included in the above capacity.

The above chart illustrates that all of the above schools are currently operating over student capacity. Additionally, these sites do not have existing available capacity for staff and visitor parking, student drop off and pick up areas, and playground or recreation areas.

A new elementary new school (Hanna Ranch Elementary) is under construction in Hercules, and is expected to open in September 1994. The capacity of this school will be approximately 650 students, K-6. A new middle and senior high school is currently in the final stages of approval. The capacities of these schools will be 800 for the middle school and 900 for the high school.

It is not possible to say at this time how future students would be housed. These decisions will be made as developments are approved. The District will work closely with the city and the developer to reach an agreement to mitigate the costs of school facilities for new students generated from each development.

California courts have consistently held that an adverse impact on school facilities is a "significant effect on the environment," within the meaning of CEQA and, accordingly, requires a full environmental review. For example, in El Dorado Union High School District v. City of Placerville (1983) 144 Cal.App. 3d 123, 192 Cal.Rptr. 480, the City was considering approval of a new 552-unit residential development. The local high school district demanded that a full Environmental Impact Report be prepared to consider the effects of the proposed development on school facilities. The city and the developer refused, arguing that potential increases in student enrollment are not physical environment effects recognizable under CEQA. The court rejected the city's arguments, holding that, where there was evidence of overcrowding school facilities, CEQA required a full Environmental Impact Report to address the impact of proposed residential development in the school district. Id., at 131-132, 192 Cal. Rptr. at 484.

The El Dorado court based its decision, in part on Fullerton Joint Union High School District v. State Board of Education (1982) 32 Cal.3d 779, 187 Cal Rptr. 398, where the Supreme Court held that a school district reorganization plan which would likely require the construction of new school facilities raised the "possibility of a significant impact" and therefore was subject to a thorough environmental review under CEQA.

The position taken by the courts in El Dorado and Fullerton has been more recently followed in William S. Hart Union High School District v. Regional Planning Commission of the County of Los Angeles (1991) 277 Cal.Rptr. 645 and Murrieta Valley v. County of Riverside, supra. In each of these decisions, the court held the county liable, under CEQA, for failing to consider school impact measures when granting legislative approvals which paved the way for new development projects.

These court decisions make it absolutely clear that, where there is evidence that a project may have an adverse impact in school facilities, CEQA requires detailed evaluation of this impact. Where this impact is found to be significant, the Environmental Impact Report must incorporate adequate mitigation measures, which

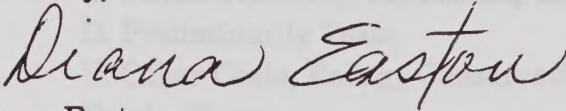
eliminate the impact or reduce it to a level of insignificance. (14 California Code of Regulations Section 15092.)

The West Contra Costa Unified School District request that the following language be included in the EIR for mitigation of impacts to the schools caused by developments to read as follows:

"For developments requiring legislative action and having significant impact on the schools, that, as a stipulation of approval for the project, a condition be included on the final map to reflect the need to mitigate all detriments and environmental impacts on the schools caused by this project to the satisfaction of the West Contra Costa Unified School District prior to approval of the project. If the developer fails to receive a written approval from the District regarding the proposed project mitigations, the City will deny the project in accordance with existing law and court decisions."

I hope this information assists you in preparation of EIR.. Please do not hesitate to contact me at (510) 234-3825, extension 2208, or Cate Burkhardt, at extension 2019, if you have any questions or comments regarding the District's responses and concerns. We look forward to receiving the EIR. Please direct the mailing to Dr. Santiago Wood, at 1108 Bissell, Richmond, 94802.

Sincerely,



Diana Easton
President
Board of Trustees

GRF:CSB

cc: Dr. Herbert M. Cole
Dr. Santiago V. Wood
Jack Schreder
Gary Freschi
Cate Burkhardt

Enclosures

Appendix A

Criteria For Site Selection

Size/Shape

	<u>Grade</u>	<u>Size</u>	<u>Students</u>
Minimum Net usable acres	K-6	10 acres	600
	7-8	20 acres	750
	9-12	40 acres	1500
	Continuation High	8 acres	

Site should be basically level and rectangular in shape (recommended not more than 3 to 5 width length ratio.)

Access/Streets

Site must be safely and easily accessible to residential neighborhoods by pedestrian, bus and private automobile traffic on publicly maintained roadways or walkways. Sites adjacent to streets with relatively high traffic volumes are not considered acceptable unless other safe access is available for the neighborhood. A new elementary school site is not acceptable along existing or proposed major streets. Street frontage in only two sides of the school is preferred.

Airports

Site must not be located within any aircraft accident exposure or airport safety areas, nor conflict with any ALUC, FAA, AICUZ, or California Division of Aeronautics policies or regulations. (If the site is within 2 miles of an airport runway or heliport, it must receive California Division of Aeronautics review.)

Environmental Constrains/Hazards

Site, and adjacent lands affecting the use of the site, must be free of any significant environmental constrains, including but not limited to protected habitats or species, watercourses, wetlands, or sewage treatment plants.

Site must not be traversed by or immediately adjacent to major fuel, natural gas, or hazardous materials/waste pipelines, or storage tanks.

Site must not be a current or previous hazardous or solid waste disposal site, or a hazardous substance site.

Site should not be within 1/4 mile of any facility that might reasonably be anticipated to emit hazardous or acutely hazardous air emissions.

**West Contra Costa Unified School District
Elementary Facility Construction Costs**

I. Allowable Building Area**A. Total Student Capacity - 600 students****B. Building Area**

1. 600 students @ 62 sf/student	37,200 sf
2. Speech/resource specialist	600 sf
	37,800 sf

II. Site**A. Purchase Price of Property**

(10 acres @ \$600,000/acre)

\$6,000,000

B. Appraisals

6,000

C. Costs incurred in Escrow

4,000

D. Survey

6,000

E. Other Costs, Geotechnical & Soils Reports

4,000

Total - Acquisition of Site

\$6,020,000**III. Plans****A. Architect's Fees for Plans**

\$410,000

B. OSA Plan Check Fee

31,600

C. School Planning, Plan Check Fee

2,600

D. Preliminary Tests

2,000

E. Other Costs, Energy Conservation & Advertising

18,000

Total - Plans

\$464,200**IV. Construction****A. Utilities Services**

\$150,000

B. Off - Site Development

225,000

C. Site Development, Service

360,000

D. Site Development, General

240,000

E. New Construction

3,402,000

F. Unconventional Energy Source

235,000

Total - Construction

\$4,612,000**Total Items II, III, and IV**

\$11,096,200

Contingency - 10%

\$1,109,620

Tests (Construction)

64,000

Inspection

45,000

Furniture and Movable Equipment

270,000**TOTAL ESTIMATED PROJECT COSTS**

\$12,584,820

ESTIMATED COST PER STUDENT

\$20,975

**West Contra Costa Unified School District
Junior High Facility Construction Costs**

I. Allowable Building Area

A. Total Student Capacity - 900 students

B. Building Area

1. 900 students @ 83 sf/student

74,700 sf

2. Speech/resource specialist

1,360 sf

76,060 sf

II. Site

A. Purchase Price of Property

(20 acres @ \$600,000/acre)

\$12,000,000

B. Appraisals

8,000

C. Costs incurred in Escrow

4,500

D. Survey

8,000

E. Other Costs, Geotechnical & Soils Reports

6,000

Total - Acquisition of Site

\$12,026,500

III. Plans

A. Architect's Fees for Plans

\$822,000

B. OSA Plan Check Fee

51,000

C. School Planning, Plan Check Fee

3,150

D. Preliminary Tests

3,500

E. Other Costs, Energy Conservation & Advertising

27,500

Total - Plans

\$907,150

IV. Construction

A. Utilities Services

\$230,000

B. Off - Site Development

210,000

C. Site Development, Service

715,000

D. Site Development, General

510,000

E. New Construction

6,845,400

F. Unconventional Energy Source

420,000

Total - Construction

\$8,930,400

Total Items II, III, and IV

\$21,864,050

Contingency - 10%

\$2,186,405

Tests (Construction)

94,000

Inspection

55,000

Furniture and Movable Equipment

417,000

TOTAL ESTIMATED PROJECT COSTS

\$24,616,455

ESTIMATED COST PER STUDENT

\$27,352

**West Contra Costa Unified School District
High School Facility Construction Costs**

I. Allowable Building Area

A. Total Student Capacity - 1500 students

B. Building Area

1. 1500 students @ 91 sf/student	136,500 sf
2. Speech/resource specialist	4,500 sf
	141,000 sf

II. Site

A. Purchase Price of Property

(40 acres @ \$600,000/acre) \$24,000,000

B. Appraisals 10,000

C. Costs incurred in Escrow 5,000

D. Survey 10,000

E. Other Costs, Geotechnical & Soils Reports 12,000

Total - Acquisition of Site

\$24,037,000

III. Plans

A. Architect's Fees for Plans \$1,110,500

B. OSA Plan Check Fee 98,500

C. School Planning, Plan Check Fee 3,700

D. Preliminarily Tests 6,000

E. Other Costs, Energy Conservation & Advertising 55,400

Total - Plans

\$1,274,100

IV. Construction

A. Utilities Services \$440,000

B. Off - Site Development 450,000

C. Site Development, Service 1,450,000

D. Site Development, General 1,090,000

E. New Construction 14,151,400

F. Unconventional Energy Source 836,500

Total - Construction

\$18,417,900

Total Items II, III, and IV \$43,729,000

Contingency - 10% \$4,372,900

Tests (Construction) 184,500

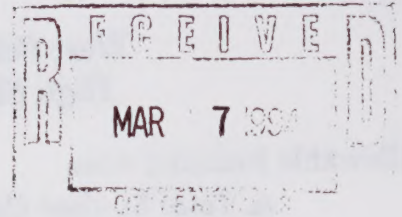
Inspection 100,000

Furniture and Movable Equipment 835,800

TOTAL ESTIMATED PROJECT COSTS

\$49,222,200

ESTIMATED COST PER STUDENT \$32,815



March 16, 1994

Mr. Gary Hembree
Community and Business
Development Director
City of Hercules
111 Civic Drive
Hercules, California 94547

Re: Your Notice of Preparation of an Environmental Impact Report
for an Update of the Hercules General Plan

Dear Gary:

I am responding to the above referenced notice which I recently received. As you know, Citation owns Parcel "C", as our property is identified in your notice.

In this letter I wish to make you aware of three matters affecting our property that you may wish to address in the EIR. These matters fall under the categories of Earth, Public Services, and Utilities.

Under the Earth category, be advised that we constructed a ditch through our parcel in order to collect upstream and on-site storm run-off, and convey it to a culvert constructed under Santa Fe Avenue which drains to the wetland adjacent to the Chelsea by the Bay homes, and eventually to Pinole Creek. Since we constructed the ditch, cattails and other wetland plant life have invaded the ditch and some agency or agencies may now classify this man-made straight-line drainage ditch as a wetland. We'd like the EIR to evaluate its significance.

557 CENTER AVENUE

SUITE 150

HARTINEZ CA 94553

PHONE 810-372-0300

FAX 810-226-1833

Mr. Gary Hembree

-2-

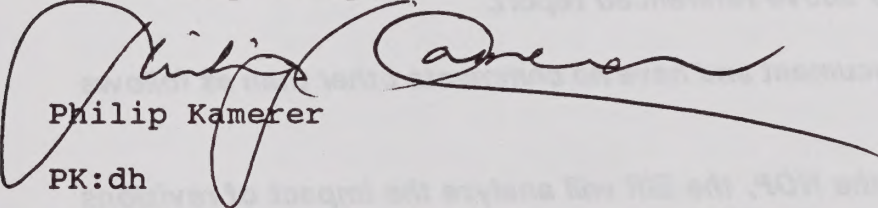
March 16, 1994

Under the Public Services category, we are aware that the Hercules by the Bay Homeowners Association wrote to the City Council on February 20, 1994, requesting that the City acquire our remaining property in Hercules for a park. Be advised that we donated the Waterfront Park (bounded by Santa Fe Avenue, Railroad Avenue, and the historic homes) to the City in connection with our earlier residential development. Additionally, we donated to the City the wetland and open space area bounded by Santa Fe Avenue, the Chelsea Homes, Pinole Creek, and Railroad Avenue. Also, we built the recreation facility currently owned and operated by the Hercules by the Bay HOA, and deeded it to that Association. The EIR should address the question as to whether or not the park and open space needs of the people in our existing development are being met.

With regard to the Utilities category, a 400 to 600 student elementary school was the use intended for our 5.6 acre parcel at the time the Pinole Wastewater Treatment Plant was expanded in the mid 80's. Consequently, it is our belief that sufficient sewage treatment capacity was reserved for our property under that plant expansion. We would like the EIR to make that assertion.

Please call me after you receive this letter so that we may discuss its contents.

Yours very truly,



Philip Kameron

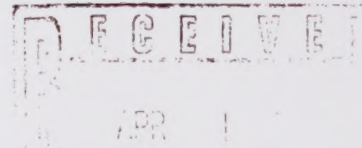
PK:dh



Hercules Incorporated
Hercules Plaza
Wilmington, DE 19894-0001
(302) 594-5000
Telex: 4994538

CORPORATE REAL ESTATE

**WRITER'S DIRECT DIAL
(302) 594-6015**



April 18, 1994

VIA FAX: 510-799-2521

ORIGINAL TO FOLLOW

**Mr. Gary Hembree
Community & Business Development Director
City of Hercules
111 Civic Drive
Hercules, CA 94547**

**RE: NOTICE OF PRESENTATION ("NOP") CIRCULATION
AND LAND USE ELEMENTS UPDATE OF
ENVIRONMENTAL IMPACT REPORT ("EIR")**

Dear Gary:

Thank you so much for your phone call last week and thank you also for providing us with a copy of the above-referenced report.

We have reviewed the document and have no comments other than as follows on the sewer capacity issue"

As noted on page 22 of the NOP, the EIR will analyze the impact of revisions to the land use element on the City's wastewater treatment plant capacity. Perhaps in addition to identifying wastewater engineering options available to the City, the EIR could also analyze options for implementing the engineering solution which is ultimately identified. For example, the EIR could examine how different public debt financing options could be utilized, or even if a public private partnership between the City of Hercules and the owners of the various properties requiring additional wastewater treatment plant capacity would make sense.

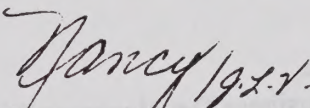
Mr. Gary Hembree

April 18, 1994

Page 2

Once the draft EIR has been published, we would like an opportunity to review this also.

Very truly yours,



**Nancy J. Cantwell
Senior Administrator
Corporate Real Estate**

NJC/jlv

nopeir

**cc: F. Etzel, Esq.
Henn, Etzel & Weiss
Four Embarcadero Center, 36th Floor
San Francisco, CA 94111-4151**

**A. D. Beatty
The Galbreath Company
1939 Harrison Street, Suite 400
Oakland, CA 94612**

I. A. Keaton - CRE/7

 LUCKY BIOTECH CORP.

5915 Hollies Street
Emeryville, CA 94608
Tel: (510) 653-0734
Fax: (510) 653-5083

March 10, 1994

Mr. Gary Hembree
Community and Business Development Director
City of Hercules
111 Civic Drive
Hercules, CA 94547

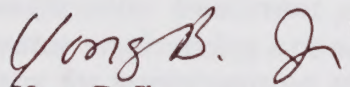
RE: Response to EIR

In relation to your "Notice of Preparation of an EIR", the contents of the report was agreeable and understandable to us.

The contact person in our company is:

Yong B. Ji
Director/Administration
510-653-0734

Sincerely,



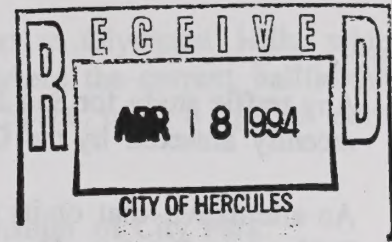
Yong B. Ji
Director/Administration

YBJ/sk

MAR

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April 15, 1994



Gary Hembree
CITY OF HERCULES
111 Civic Drive
Hercules, CA 94547

Dear Mr. Hembree:

This letter is in response to the Notice of Preparation for the proposed amendments to the City's General Plan. I have been a resident of Hercules for a number of years, and I have participated on committees supporting strategic economic development and the proposed update for the general plan you are now considering.

As a resident, and as a member of these committees, I have been very concerned about the impacts of the development on the Bayside of Hercules. While I am not opposed to development of these areas, it is critical that development be done in a way that does not detract from our neighborhood's "Quality of Life".

As a member of the General Plan Update committee, I could not support the recommended plan that was passed by the majority. This letter is to request that you consider an alternative to that plan that will incorporate the needs of the Bayside of Hercules, that addresses the following issues.

PROPOSED ALTERNATIVE USES

- Area 1: This area should show a Shoreline Trail, and a 100-foot non-developable, open space buffer adjacent to the existing trail on the southerly perimeter of this property. An alternative that considers only Low Residential designation and appropriate compatible uses. Pond "C" should be preserved with appropriate adjacent open space surrounding it. The city should determine the status of the temporary fill permit that was obtained for this property for the fill that was placed on it.
- Area 3: The wetlands area east of the City's Corporation Yard should be preserved and the ridge east of that should be preserved to help separate the commercial areas from the residential. Low Residential designations should be used, which is consistent with the residential designations on this side of San Pablo Ave.

TRAFFIC

- Any traffic study for San Pablo Avenue should include the Franklin Ridge property, recently annexed by the City of Hercules.
- An alternative that omits consideration of an additional street being allowed on San Pablo Ave. between Hercules Ave. and Sycamore Ave.
- For all alternatives, that a 50-foot open space buffer be shown along both sides of San Pablo Avenue. On the Village Parkway side from the City of Pinole to Area 9; and on the Hercules by the Bay side from Pinole to Sycamore, with an attempt to preserve as much as possible of the trees on the far side of Sycamore within the 50-feet. This is consistent with the open space area already shown in the Village Parkway area and would preserve the designated San Pablo Avenue Scenic Corridor. Any future development in Hercules should become part of an Assessment District for the maintenance and enhancement of this Scenic Corridor as mitigation for the impact on the current property owners on the Bayside of town.
- The Circulation Element of the City's plan needs to be amended to call for an LOS of a low D (close to "C") or lower for the entire city. Variances for a higher LOS D could be granted by the City for use permits that bring in a commercial tax base. All LOS E designations should be changed, since they are not consistent with the City's Quality of Life.

PARK & OPEN SPACE

- All alternatives should show a shoreline trail in the vicinity of the Southern Pacific Railroad tracks, for the entire length of the city's jurisdiction.
- All alternatives should show a creekside trail incorporated into any work done on Refugio Creek, from San Pablo Bay to Refugio Valley Road.
- This element needs to be amended to call for the same level of density of parks on the Bayside of Hercules that can currently be found on the Refugio Valley area. There is a critical lack of parks on our side of town and as more development goes in, our side of town deserves the same level of resources that have been requested (and received) from other Developers.
- The EIR should address a plan for developing parks on the Bayside of town. This is separate from the level of parks that our side of town requires. This deals with a commitment for the development, operation and maintenance of these facilities within a specific time, to assure this area that park resources will be timed in a way that compliments the development process.
- The EIR must show that a plan exist to use the substantial funds to develop park and open space resources on the Bayside of town with current funds that have been required by Developers and raised from taxpayers within this area.

- Area 4: Low Residential for that area which is next to Olympian Hills, which is consistent with that area. Commercial for where the current ballfields are. These two uses should be separated by Open Space, being a riparian corridor branch of Refugio Creek.
- Area 5: Zoned Low Residential; General Plan designation of City Park.
- Area 6: A shoreline trail should be shown adjacent to the shore on this parcel.
- Area C: Currently planned for a school. This area should be considered for a community park.

WETLANDS / RIPARIAN CORRIDORS

- The City of Hercules should develop a policy that will require Areas 1, 2, 3, 4, 9, 10, 11, B, C, D, E, F, H, to obtain a wetlands determination before applying for development. Any residential units or FAR determinations should be allocated after it is determined what upland is available for development. In the Franklin Ridge EIR, the City also set precedent by calling for the preservation of existing riparian corridors and establishing a 100-foot buffer extending from each shoulder of slopes for each corridor. While the main branch of Refugio Creek will need substantial work for flood control in Areas 3 & 1, there are additional riparian corridors in the other areas under consideration that should be given the same policy direction that was given to Franklin Ridge.

There has been some discussion about using existing wetland acreage for the reconfiguration of Refugio Creek in areas 1, 3 & 4. The report should examine the difference in habitats in the existing wetlands and wetlands that are incorporated into riparian corridors to see if this use is compatible. At least one alternative should look at recognizing the riparian corridor without using any acreage determined to have wetland value by Army Corps of Engineers.

INFRASTRUCTURE

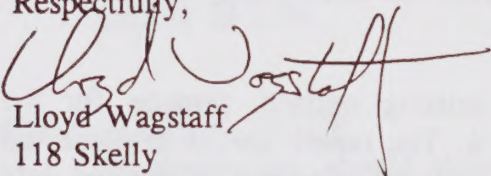
- Any EIR addresses how sewage capacity will be addressed with the proposed alternatives.
- The power-lines that currently run through Hercules By the Bay and Olympian Hills, be re-routed to the interior of the undeveloped parcels under consideration.
- The City's Redevelopment agency has identified Refugio Creek as needing to be reconfigured to prevent flooding in the area 1, 3 & 4. Any reconfiguration should be done in a sensitive manner; Wildcat Creek in Richmond is an excellent example of a flood control project that met environmental goals and adequate flood control. The General Plan should examine the standards for this reconfiguration and its implementation.

- The EIR should acknowledge that development fees collected from development on the Bayside of town, be spent in this area. The Bayside will feel the impacts of development the greatest, and it is imperative that it be shown that these funds be spent on mitigation projects within the area most impacted.
- There are substantial wetlands within the proposed areas. The City of Hercules currently is responsible for a wetland area, but the maintenance of this area is quite poor. The alternatives should call for a wetlands maintenance plan to assure proper stewardship of the mitigation areas - even if it is determined that the City will not maintain the wetlands.

This is also to comment on the assumptions within this report. The citizen committee that made recommendations for the General Plan Update, was not allowed to consider development on a number of parcels that have now been included into this process; even though the committee requested that they be included. Because this Project is substantially different from what was considered, I think it is inappropriate to make reference to any "Community Panel" recommendations within the EIR.

It should also be pointed out that a portion of Parcel 1 is owned by the California State Lands Commission.

Respectfully,



Lloyd Wagstaff
118 Skelly
Hercules, CA 94547

P.S. I have made comments before on NOP's, but these letters have not been included in the DEIR's. I would appreciate a confirmation from you whether you intend to place this letter into the DEIR for this Project.

APPENDIX C: VEGETATION AND WILDLIFE

C.1 SPECIAL STATUS SPECIES PROTECTION - REGULATORY FRAMEWORK

Special status species are defined for the purpose of this document to include species in the following categories, including those considered to meet CEQA Guidelines Section 15380 criteria as rare, threatened or endangered and those of other public concern¹:

RARE, THREATENED, OR ENDANGERED SPECIES (SECTION 15380 CRITERIA)

Plants that are listed or proposed for listing as rare, threatened, or endangered under the California Endangered Species Act or federal Endangered Species Act;

Animals that are listed or proposed for listing as threatened or endangered under the California Endangered Species Act or federal Endangered Species Act;

Plants or animals that are Candidates (Category 1 or 2) for possible future listing as threatened or endangered under the federal Endangered Species Act;

Plants included on lists 1A, 1B, and 2 of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (Smith and Berg, 1988). CDFG recognizes that Lists 1A, 1B, and 2 of the CNPS inventory contain plants that, in the majority of cases, would qualify for state listing, and CDFG requests their inclusion in EIRs as necessary;

Animals designated by the California Department of Fish and Game (CDFG) as "species of special concern"; and

Animals that have been designated as "Protected" or "Fully Protected" by the federal government under law (e.g., Bald Eagle Protection Act).

SPECIAL CONCERN (NOT MEETING SECTION 15380 CRITERIA)

Even though the following are listed as not meeting the Section 15380 criteria, the Lead Agency may decide to consider impacts to these species to be significant under CEQA:

¹ Species subject to NEPA requirements (e.g., USFWS Biological Assessments) include plants and animals that are listed as threatened or endangered under the federal Endangered Species Act. The USFWS recommends that candidate species (Category 1 or 2) and species proposed for listing also be considered in informal consultation during a project's environmental review. This is recommended because, in the event that a species were to be listed during the design or construction phases of a project (i. e., before occupancy), new studies and restrictions might be imposed.

Plants included on lists 3 and 4 of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (Smith and Berg, 1988). Plants occurring on CNPS Lists 3 and 4 are "plants about which more information is needed," and "plants of limited distribution," respectively (Smith and Berg, 1988). These plants may be included as special-status species on the basis of local significance or recent biological information;

Plants or animals which have been identified as being of local or regional interest.

Special status species have varying degrees of legal protection under both Federal and California Endangered Species Acts (FESA and CESA), and recognition under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) share responsibility for management and protection of biological resources in the proposed project area. Under separate State and Federal legislation, each agency conducts a detailed review of any project that could affect a special status plant or animal species. If a species listed as endangered or threatened may be affected, the lead agency, as defined by CEQA and NEPA, must initiate a formal consultation with the USFWS and/or CDFG, as applicable under federal or state law. The following provides a brief summary of FESA and CESA as they relate to special status species within the project area.

Summary of the Federal Endangered Species Act

Federal law dictates that all federal departments and agencies shall use their authority to conserve endangered and threatened species as declared in FESA. The Act defines as "endangered" any species which is in danger of extinction throughout all or a significant portion of its range. A "threatened" species is any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Additional species of concern are divided into two other categories: 1) proposed for listing as threatened or endangered and 2) candidate for federal listing. "Proposed" endangered and threatened species are those species for which a proposed regulation has been published in the Federal Register, but not a final rule. Proposed species are granted limited protection under FESA and must be addressed in Biological Assessments (under Section 7 of the Act). USFWS typically reviews project plans and species information to determine the effects of federal actions on a proposed species. Any recommendations to modify or abandon the project and/or undertake protective measures for proposed species are not mandatory on the federal agency conferring with the USFWS. "Candidate" species are taxa that the USFWS is considering for listing as endangered or threatened species, these species being classified into three categories:

Category 1 includes those species on which enough data is on file to support the federal listing; Category 2 are taxa which are threatened but distribution data is insufficient to support the federal listing and; Category 3 are non-candidate species which were previously considered candidate. Candidate species are afforded no protection under FESA. Any recommendations to modify or abandon the project and/or undertake protective measures for candidate species are not mandatory under FESA.

The Federal Endangered Species Act (16 USC 1531 et seq.) Section 9 prohibits the "taking²" of listed species, including their habitat. If incidental taking might occur from a project, that is, if individuals of a listed species would be inadvertently harmed, harassed, or collected, or would suffer significant habitat modification, consultation with the USFWS is required. Section 7, which applies to federally funded or permitted projects or projects on federal lands, and Section 10(a), which applies to nonfederal projects and development on private land, require formal consultation where a project may affect a species currently listed as threatened or endangered. The USFWS recommends that candidate species and species proposed for listing also be considered in informal consultation during a project's environmental review. This is recommended because, in the event that a species were to be listed during the design or construction phases of a project (i. e., before occupancy), new studies and restrictions might be imposed.

Recent Legal Settlements

As the result of the 1991 out-of-court settlement between USFWS and CNPS (the lawsuit was brought against the USFWS to eliminate the existing backlog of candidate plant species), the USFWS is required to propose 159 plant taxa for endangered or threatened status by early 1996.

Reauthorization of FESA

Congressional action on the scheduled 1992 FESA reauthorization was delayed by elections until 1993 and is still debate. Early hearings on the issue indicate strong support to substantially modify key provisions of virtually all critical sections of the Act. The proposed modifications include the following;

² "Take" is defined by Federal Regulation Code 17.3 (1975) as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct. The term harm is defined as an act or omission which actually injures or kills wildlife, including acts which annoy it to such an extent as to significantly disrupt essential behavioral patterns, which include, but are not limited to, breeding, feeding, sheltering, or significant environmental modification or degradation of critical habitat that results in these effects."

- Incorporation of economic analyses and assessment of "takings" of private property,
- Establishing mandatory time schedules for preparation of recovery plans,
- Weakening the requirements for interagency cooperation under Section 7,
- Weakening the prohibitions of "take" of species under Section 9,
- Changing habitat conservation planning and the permit granting process for "take" under Section 10, and
- Adding requirements to compensate private individuals for economic losses resulting from listed species protection.

Summary of California State Plant and Animal Species Protection

The legal framework and authority for the State's program to conserve plants and animals is woven from a number of pieces of legislation: the California Endangered Species Act (CESA), the California Native Plant Protection Act (NPPA), the California Environmental Quality Act (CEQA), the Natural Communities Conservation Planning Act (NCCPA), and various Sections of the Fish and Game Code.

The California Endangered Species Act (CESA) defines California endangered species as those whose continued existence in California is jeopardized. California rare or threatened species, although not presently threatened with extinction, may become endangered if their environments change or deteriorate. The Native Plant Protection Act also affords limited protection to special status plant species.

CEQA directs each state agency to consult with the CDFG on any project the agency initiates that is not statutorily or categorically exempt from CEQA. CEQA guidelines (Section 15065a) declare that impacts to rare, threatened or endangered plants or animals are significant. CEQA provides recognition not only for State-listed species, but for any species that can be shown to meet the criteria for State listing. The CDFG recognizes that lists 1A, 1B, and 2 of the California Native Plant Society Inventory consists of plants that, in a majority of cases, would qualify for listing.

The Natural Communities Conservation Planning Act was enacted in 1991 to promote long-term protection of species and habitats via regional, multi-species planning, before the special measures provided by CESA become necessary. The NCCPA does not supersede CESA or CEQA, but gives the CDFG the authority to enter into agreements with any person or entity to protect areas large enough to ensure the continued existence of multiple species and their habitats, with allowance for "reasonable and appropriate urban growth". Under the NCCPA, a

pilot conservation planning program was initiated for the southern California coastal sage scrub plant community.

The CDFG has developed a list of "Species of Special Concern." These animal species are defined as having California breeding populations which are of special concern in that they may face extinction within the State in the near future. By so listing a species, the CDFG draws attention to the potential for future designations of such species to a more protected status.

Fully protected species include those that are protected under Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These species, as well as certain other bird species, are afforded further protection under Sections 3503 (protection of nests and eggs), 3503.5 (protection of raptor eggs), and 3513 (protection of migratory birds) of the California Fish and Game Code as well as the federal Migratory Bird Treaty Act of 1914.

A formal consultation process must be initiated with the CDFG for projects that the State lead agency has determined may or will have an adverse effect on State listed species. As with USFWS policy, candidate species are not subject to the same consultation requirements as listed endangered, rare, or threatened species. CESA does encourage informal consultation for candidate species that may become officially listed prior to completion of the CEQA process.

In addition to providing formal and informal consultation, the CDFG has established the California Natural Diversity Data Base (CNDDDB), a program that inventories the State's special status species and natural communities, and also provides information on their current listing status. The California Native Plant Society (CNPS) gathers information from the CDFG and amateur and professional botanists throughout the state, and contributes this information to the CNDDDB. The CNPS publishes and regularly updates the *Inventory of Rare and Endangered Vascular Plants of California*. The *Inventory* has become the standard reference on California's rare and endangered plants.

In 1993, the County consulted with the USFWS and CDFG regarding special status species in the project area (in relation to the State Route 4 Bypass Project). This information, together with data available from the CNPS and CNDDDB inventories, has been used to compile a "Species of Concern List" which identifies all of the listed plant and animal species which may potentially occur within the project area (Refer to Table X.D.1). Descriptions of each species and the results of the surveys conducted to determine their presence or absence in the project area are provided herein.

TABLE VIII.C.1: SPECIAL STATUS SPECIES PROTECTION CLASSIFICATION

Federal Status

Endangered	Species in danger of extinction throughout all or significant portion of its range.
Threatened	Species likely to become endangered within foreseeable future throughout all or significant portion of its range.
Category 1	Candidate information now available indicates that listing may be appropriate with supporting data currently on file.
Category 1*	Candidate information now available indicates that listing may be appropriate with supporting data currently on file; species presumed extinct.
Category 2	Candidate information now available indicates that listing may be appropriate but supporting data are not currently on file.
Category 2*	Candidate information now available indicates that listing may be appropriate but supporting data are not currently on file; species presumed extinct.
Category 3a	Non-candidate previously considered candidate but now extinct.
Category 3b	Non-candidate previously considered but not invalid taxonomically.
Category 3c	Non-candidate previously considered candidate but now too widespread or not threatened.

California State Status

Endangered	Species whose continued existence in California is jeopardized.
Threatened	Species, although not presently threatened with extinction, is likely to become endangered in the foreseeable future.
Rare	Species which may become threatened in the foreseeable future.
Special Concern	Animal species with California breeding populations that may face extinction in the near future.

California Native plant Society (CNPS)

List 1	A. Plants presumed extinct in California B. Plants are rare and endangered in California and elsewhere.
List 2	Plants are endangered in California, but more common elsewhere.
List 3	Plants about with more information is needed.
List 4	Plants of limited distribution (a "watch" list).

SOURCE: Environmental Science Associates, Inc.

In addition to the protected species designations listed in Table X.D.1, the CDFG has developed a list of "Species of Special Concern." These species are defined as having California breeding populations which are of special concern in that they may face extinction within the State in the near future. By so listing a species, the CDFG draws attention to the potential for future designations of such species to a more protected status.

C.2 WETLAND PROTECTION - REGULATORY FRAMEWORK

UNITED STATES ARMY CORPS OF ENGINEERS

Under two separate statutory authorities, the U.S. Army Corps of Engineers is charged with issuing permits for placement of structures and other potential obstructions to navigation in navigable waters (Section 10, Rivers and Harbors Act), and discharge of dredged or fill material into "waters of the United States," a broadly defined classification which includes most streams, rivers, and wetlands (Section 404, Clean Water Act). Certain activities such as normal farming practices, emergency reconstruction of existing structures, and construction of irrigation ditches are exempt from Section 404 permit requirements.

In tidal areas, waters that fall within the Corps' jurisdiction include those areas that are: subject to the ebb and flow of the tide up to the plane of Mean High Water (MHW); are no longer tidal but still fall below MHW; or are wetlands adjacent to regulated waters. In nontidal areas, jurisdiction extends to the Ordinary High Water Mark (OHWM), a line that, in the absence of hydrologic data, is evident from lake shoreline or stream or riverbank indicators (bank shelving, debris lines, etc.). This latter definition, which extends into and encompasses the Nation's "headwaters" (see below, Nationwide Permit Program), includes intermittent as well as perennial streams.

Delineation of Wetlands and Determination of Jurisdiction

Wetlands subject to Corps regulation may be either adjacent to navigable tidal or nontidal waters and their tributaries, or isolated from them. (A recent federal appeals court decision [Hoffman Homes, Incorporated v. EPA] has found that isolated wetlands cannot be regulated under the Clean Water Act, a decision that may be appealed to the Supreme Court.) To determine whether areas that appear to be wetlands are subject to Corps' jurisdiction (i.e., are "jurisdictional" wetlands), a wetlands delineation must be performed. Three criteria are applied in this determination: (1) evidence of inundation or saturation by surface or groundwater for at least two weeks during an average rainfall year (hydrology), (2) a prevalence of wetland vegetation

(hydrophytes) if the site is undisturbed, and (3) typical wetland (hydric) soils, that is, soils formed under saturated, anaerobic conditions. Since streams, including those with riparian habitat, rarely meet all three criteria for delineation as a wetland, those portions of a stream or river that lie below the line of "ordinary high water", or "bankful stage", are generally regarded by the Corps as falling within their jurisdiction as either navigable waters, tributaries to navigable waters, or "other waters" of the United States.

In 1987 the Corps published a manual which standardized the manner in which waters, including wetlands, were to be delineated nationwide. While the manual was effective in most circumstances, differences arose in certain instances among federal agencies which had their own wetland definitions. Consequently the Corps, EPA, Soil Conservation Service (SCS) and the U.S. Fish and Wildlife Service (USFWS) in 1989 published a new "unified" method for wetland delineation. Under the 1989 methodology an area meeting the minimum soils criteria and supporting plant species adapted to occasional saturated conditions was considered a jurisdictional wetland if the soil, even six to 18 inches below the surface, showed evidence of saturation for as little as seven consecutive days per year during the growing season.

Public and legislative debate concerning the 1989 methodology led to a new effort to refine the delineation criteria and methods. As a result, on August 14, 1991 a proposed new wetland delineation manual was published in the Federal Register for public review. The proposed manual, sponsored by the same four agencies, was intended to replace the 1989 manual. Public comment revealed considerable dissatisfaction with the proposed revised manual, and the revisions are currently undergoing extensive review following the close of public comment in October 1991. In the interim, the Corps has provided guidance through its Districts that, until a new (revised) delineation manual is completed and approved (probably late 1992 or early 1993), the 1987 manual is to be used to identify and delineate wetlands potentially subject to Section 404 regulation.

Individual 404 Permit

Under the general procedures of applying for an individual permit, a field survey is first conducted to determine whether a proposed development would encroach upon (place fill in) a potential jurisdictional stream or wetland area or would otherwise adversely alter a jurisdictional area. To carry out this evaluation, it is necessary to determine the extent to which "waters of the United States" exist on a development site, applying the accepted methodology contained in the 1987 Manual. If the activity would affect wetlands adjacent to "navigable" waters or their

tributaries, or would affect greater than ten acres above the "headwaters" of navigable waters or their tributaries (see below - Nationwide Permit #26), then an application would be made to the Corps for a permit to fill.

Several steps can be anticipated in the processing and review of an individual permit application, in the following general order: (1) A Public Notice would be issued by the Corps; (2) The Corps staff would analyze information provided by the applicant, request comment from other resource agencies, and conduct their own field visit to confirm the wetland delineation and to identify areas under the Corps' jurisdiction; (3) It would be determined whether the proposed fill were for a water dependent project; if not, (4) It would be necessary to demonstrate through preparation of an alternatives analysis pursuant to Clean Water Act Section 404 (b)(1) Guidelines that there were no practicable alternative upland sites and that there were no environmentally less damaging sites that did not affect special aquatic sites; (5) If the absence of practicable alternatives were successfully demonstrated, it would be necessary to provide mitigation for the fill, in sequence: first, avoiding the impact, second, if avoidance were not possible, minimizing the impact, and, only as a last resort, compensating for the loss by creating or restoring wetlands in equivalent kind and value. This sequencing of mitigation is spelled out in a Memorandum of Agreement between the Corps and EPA and is generally in keeping with the current Federal policy of "no net loss" of wetland acreage.

In evaluating the permit application, the Corps District Engineer would also consider the consistency of the proposed project with numerous factors reflecting the "public interest" and would conduct a review of environmental impacts of the project in accordance with the National Environmental Policy Act (NEPA).

Nationwide Permit Program

The Corps' Nationwide Permit program (NWP) is a form of general permit which the Corps can apply to projects that are substantially similar in nature and/or have minimal individual or cumulative adverse effect on waters, including wetlands. The purpose of the program is to assist in separating "significant" from "insignificant" activities and potential impacts, to reduce potential duplication with other governmental agencies, and reduce paperwork.

The Department of the Army recently authorized 36 Nationwide Permits, effective on January 12, 1992. Authorized under either Section 10 and Section 404, or both, the NWPs vary widely in types of activities covered. Twelve of the Permits require notification to the Corps and

distribution of a Predischarge Notification (PDN) Nationwide Permit No. 26, provides a mechanism for processing and review of activities which would affect fewer than ten acres of waters, including wetlands, in areas that lie "above the headwaters." Headwaters are defined as having a mean annual flow of five cubic feet per second or less (33 CFR Parts 320 through 330), or, in the arid West, a flow of less than five cubic feet per second more than 50 percent of the time. This includes many intermittent streams.

Since NWP #26 is one of the NWPs requiring a PDN, if one to ten acres of stream and/or wetland fall within this definition, the Corps must be notified of any proposed action that would place fill in jurisdictional waters. The Corps may elect to process an individual permit or allow the proposed fill to proceed under the Nationwide Permit. Generally, the closer the proposed fill area is to one acre, the greater the probability that a Nationwide Permit may be issued. The Corps has provided in a Public Notice an outline of information required for preparation and processing of a PDN. The Corps has 30 days in which to contact other agencies, receive their comments, and approve or deny the "application."

For filling of jurisdictional waters which fall outside this definition and/or are greater than ten acres, either another NWP may be considered, or an application for an individual permit would be filed with the Corps (see above). If less than one acre "lies above the headwaters" and meets the other conditions of the Nationwide permit program, no formal notification is required. However, the Corps has indicated that informal "notification" is advisable if there is any question as to the applicability of any Nationwide permit. To this end, written request would be made to the Chief of the Regulatory Section, Corps of Engineers, accompanied by a description of the property, a map documenting the findings of a preliminary wetland delineation, and other information recommended by the Corps.

STATE WATER RESOURCES CONTROL BOARD

Section 401 of the Clean Water Act requires an applicant for a permit to discharge dredged or fill material into waters of the United States to first obtain a certificate from the appropriate State agency that the fill is consistent with State's water quality standards and criteria. In California, the authority to either grant certification or waive the requirement for individual permits is delegated by the State Water Resources Control Board to the Regional Water Quality Control Boards. A request for certification or waiver is submitted to the Regional Board at the same time that an application is filed with the Corps. The Board has 60 days to review the application and act.

All of those Nationwide permits that were recently authorized under Section 404 also must have certification from the State Board. In the past, the Board has withheld certification from several of the NWPs, including #26, on a State-wide basis, requiring instead that any project qualifying for NWP #26 involving greater than two acres receive 60-day review, probable mitigation requirements, a public hearing, and approval of the water quality certification by the State Water Resources Control Board as an agenda item. Projects of any size may be brought before the Board (for certification approval or denial) if they are deemed to have a significant water quality impact. In general, for less than one acre, the Board has issued a waiver, provided the applicant also entered into a Stream Alteration Agreement with the CDFG (see below).

The Board has not yet promulgated rules consistent with the recently authorized NWP program; that action is anticipated in May, 1992. It is likely, however, that certification for NWP #26 in California as a whole will continue to be denied, and therefore each request for greater than two acres will continue to be treated individually, requiring that procedures outlined above be followed.

Regional Water Quality Control Board wetland policy states that there should be no net loss of wetland acreage or value. Mitigation should be in-kind and preferably on-site. Mitigation measures beyond a map and general guidelines might include a specific description of acreage that would be affected; the amount, location, and type of wetland restoration and/or creation proposed; a detailed planting plan; and long-term monitoring and maintenance plans.

CALIFORNIA DEPARTMENT OF FISH AND GAME STREAM AND LAKE ALTERATION AGREEMENT

In addition to Corps regulatory authority over "Waters of the United States," CDFG has authority to oversee work in streams and lakes pursuant to Fish and Game Code Sections 1601 (public projects) and 1603 (private projects). A landowner or agency proposing to substantially divert the natural flow of a stream or lake, substantially alter its bed or bank, or use any material from the streambed, must first enter into a "Stream- or Lake-bed Alteration Agreement" with CDFG. The CDFG, while being able to impose reasonable conditions on the agreement, may not decline to enter into an agreement.

BAY CONSERVATION AND DEVELOPMENT COMMISSION

The Bay Conservation and Development Commission (BCDC) has jurisdiction over San Francisco Bay tidelands and shorelines. Specifically, BCDC has shoreline jurisdiction 100 feet inland of the line of highest tidal action, estimated to be 5.8 feet National Geodetic Vertical Datum (NGVD), and Bay jurisdiction over adjacent Bay waters and tidelands. In addition, the BCDC has authority over areas formerly subject to tidal action that have been diked since 1965 including tidal mudflats. Although much of the proposed Renaissance Estates project site is located on historic bay tidelands, these lands were diked prior to 1965. As such BCDC has no jurisdiction over this property.

While the Commission does not have jurisdiction over such diked historic bay tidelands, it has adopted advisory policies for projects in these locations. The following are the BCDC's general policies on diked historic baylands:

- "1. Diked historic baylands should be maintained in their present use for as long as possible.
- "2. If some diked historic baylands cannot be retained in their existing uses, any development should meet the following criteria:
 - a. To the maximum feasible extent, the development should be restricted to the dry portions of sites containing year-round, weedy (ruderal) vegetation. Fill should be permitted only if there is no practicable alternative and the fill is the minimum necessary. Filling should avoid areas that (1) have, or can feasibly be enhanced to have, high wildlife values; or (2) can be opened to tidal action.
 - b. Development should not present a hazard to persons or property due to flooding, potential liquefaction, or strong ground motion during earthquakes.
 - c. In all cases, mitigation should be provided whenever there is a significant, unavoidable impact on the environment, such as by filling or excavating baylands. Mitigation should fully offset lost or adversely affected wildlife values. Projects should be designed and sited to buffer and protect any adjacent wildlife. Any areas provided as mitigation should be permanently preserved. Once mitigation has been provided for a project, repeated or cyclical losses of recovered vegetation or other values due to maintenance of the project should not require additional mitigation.
 - d. Mitigation should consist of the following: (1) acquisition, restoration, preservation and dedication of non-wetlands that can feasibly be restored to provide wetland values; or (2) acquisition, preservation, dedication, and, where necessary, restoration of suitable diked historic baylands or other mudflats or marshes which will result in improved management practices enhancing the wildlife value of the area.

- "5. Enhancement of restoration projects in diked historic baylands should be planned in consultation with the appropriate Mosquito Abatement District and the Department of Fish and Game and in accordance with the report entitled, 'Guidelines for Restoration and Enhancement of Diked Historic Baylands.' Projects should meet mosquito control criteria.
- "6. Prior to approving any project for development, improvement, or public purchase within any diked bayland, the extent of any public rights in the land should be identified and resolved by the State Lands Commission in consultation with other affected agencies.
- "7. Maximum feasible public access to and along the perimeter of baylands should be provided in and through every project, except in areas where wildlife values would be adversely affected by human or pet intrusion.
- "8. Public actions other than regulation can foster protection, enhancement and, in some cases, restoration to tidal action of diked historic baylands. Property tax policy, for example, should assure that rising property taxes do not force conversion of diked historic baylands to urban development. Project sponsors, agencies administering land banks, or preservation and enhancement projects should also give high priority to and make every effort to buy diked baylands, especially for use as mitigation sites for future projects that may have unavoidable adverse impacts on the Bay. Additionally, the public should make every effort to buy such areas for park, open space, flood control, and Bay related habitat. First priority for acquisition should be particularly scarce and valuable habitat such as fresh water marshes, rare and endangered species habitat, and sites adjacent to or near existing protected wildlife habitat and open space."

The following are the BCDC's policies on diked historic baylands in agricultural use:

- "1. Because agriculture is the major use of diked historic baylands which is uniquely compatible with preservation of their habitat value, agricultural uses on diked historic baylands not designated for a priority use in the Bay Plan should be maintained as long as feasible. Feasibility should be determined by evaluating both the economic viability of agricultural use of the parcel alone and as part of a larger agricultural unit. If agricultural use is economically viable in either circumstance, a change in use should not be permitted. Activities on diked historic baylands in agricultural use should be limited to farm-related activities or development that has no significant adverse effect on agricultural use of the site or the surrounding area. Extensions of urban services into areas where diked historic baylands are in agricultural use should be not be permitted.
- "2. If agricultural use of diked historic bayland parcel is no longer feasible, then any development should be guided by the General Policies on Diked Historic Baylands. . . .

"Any environmental document prepared for the project should fully describe existing uses of the property, the extent of any existing wetlands, wildlife use of the area, and any proposed mitigation. The environmental document should discuss the economic value of the site for agriculture, and how loss of the agricultural use of the site may impact nearby agricultural industries, including agriculture in other diked historic baylands. The environmental document

should also discuss the consistency of the project with the Commission's advisory policies on diked historic baylands.³

If development is permitted on the site, the flood control design should account for increase in sea level rise. The BCDC's recently adopted Bay Plan policies concerning sea level rise state:

"To prevent damage from flooding, structures on fill or near the shoreline should have adequate flood protection including consideration of future relative sea level rise as determined by competent engineers. As a general rule, structures on fill or near the shoreline should be above the wave run-up level or sufficiently set back from the edge of the shore so that the structure is not subject to dynamic wave energy. In all cases, the bottom floor level of structures should be above the highest estimated tide elevation. . . .

"To minimize the potential hazard to Bay fill projects and Bayside development from subsidence, all proposed developments should be sufficiently high above the highest estimated tide level for the expected life of the project or sufficiently protected by levees to allow for the effects of additional subsidence for the expected life of the project, utilizing the latest information available from the U.S. Geological Survey and the National Ocean Service. Rights-of-way for levees protecting inland areas from tidal flooding should be sufficiently wide on the upland side to allow for future levee widening to support additional levee height so that no fill for levee widening is placed in the Bay.

"Local governments and special districts with responsibilities for flood protection should assure that their requirements and criteria reflect future relative sea level rise and should assure that new structures and uses attracting people are not approved in flood prone areas or in areas that will become flood prone in the future, and that structures and uses that are approvable will be built at stable elevations to assure long-term protection from flood hazards."

³ Bay Conservation and Development Commission, letter of response to the Notice of Preparation, July 15, 1991.

APPENDIX D: HAZARDOUS MATERIALS

HAZARDOUS WASTE REGULATORY FRAMEWORK

Generation, storage and handling of hazardous materials and wastes are regulated by various federal, state, and local laws and regulations aimed at the protection of public health and the environment. The major laws and regulations are discussed below.

Federal

The Environmental Protection Agency (EPA) is responsible for enforcing regulations at the federal level pertaining to hazardous materials and wastes. The primary federal hazardous materials and waste laws are contained in the Resource Conservation and Recovery Act of 1976 (RCRA), and in the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). These laws require that responsible parties report any known hazardous waste contamination of soil or groundwater to the EPA. (State and local agencies also must be involved. Reporting must include the California Department of Health Services, the San Francisco Bay Area Regional Water Quality Control Board (RWQCB), or the local County public health department, depending on specific circumstances.) Any contamination that threatens public health or the environment must be remediated by the responsible party according to certain standards set by the EPA. The EPA maintains a listing of contaminated sites, the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) database, and a listing of hazardous waste generators, the RCRA database.

Federal statutes pertaining to hazardous materials and wastes are contained in the Code of Federal Regulations (40 CFR). The regulations contain specific guidelines for determining whether a waste is hazardous, based on either the source of generation or the properties of the waste. Determination of standards for remediation of soil and groundwater contamination is performed on a case-by-case basis.

State

The EPA has delegated much of its regulatory authority to individual states whenever adequate state regulatory programs exist. The Department of Toxic Substances Control (DTSC) within

the California Environmental Protection Agency (Cal-EPA) is the regulatory agency empowered to enforce hazardous materials and waste regulations in California.

California hazardous materials and waste laws incorporate federal standards, but in many respects are stricter. For example, the California Hazardous Waste Control Law (HWCL), the state equivalent of RCRA, contains a much broader definition of hazardous materials and waste. Some substances not considered hazardous under federal law are considered hazardous under state law. The California Hazardous Substance Account Act, essentially the equivalent of CERCLA, contains a provision for designation of state funds to clean up sites where private funding is unobtainable. State hazardous materials and waste laws are contained in the CCR Titles 22 and 26.

Regulations implementing the HWCL list 791 hazardous chemicals and 20 to 30 more common materials that may be hazardous; establish criteria for identifying, packaging and labeling hazardous wastes; prescribe management of hazardous wastes; establish permit requirements for hazardous waste treatment, storage, disposal and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

When hazardous waste is transported for treatment or disposal, hazardous waste manifests must be prepared and retained by the generator for a minimum of three years. A hazardous waste manifest lists a description of the waste, its intended destination, and regulatory information about the waste. A copy of each manifest must be filed with Cal-EPA. The generator must match copies of hazardous waste manifests with receipts from the treatment / disposal / recycling facility.

The project area is located within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB). The Regional Board is authorized by the State Water Resources Control Board to enforce the provisions of the Porter-Cologne Water Quality Control Act of 1969, which incorporates federal water protection laws. That Act gives the RWQCB authority to require groundwater investigations when the quality of the groundwaters or surface waters of the state have been or could be threatened, and to order remediation of the site if necessary.

Cal-EPA, the RWQCB, or a local agency could act as the lead agency in site investigations and remediation projects. The state determines the level and extent of required clean-up, based on the specific site conditions and surrounding land uses. State clean-up standards can be more

restrictive than federal standards; both state and federal standards are used to determine clean-up levels. Clean-up standards employed by the RWQCB can be more stringent than those used by Cal-EPA, and are region-specific. If soils containing hazardous materials are excavated, the Bay Area Air Quality Management District (BAAQMD) may impose specific requirements on such activities to protect ambient air quality from dust or airborne contaminants. BAAQMD requirements also cover asbestos abatement during building demolition.

The California Office of Permit Assistance maintains the statewide "Cortese" list of Identified Hazardous Waste and Substance Sites, which includes all contaminated sites designated by Cal-EPA, the State Water Resources Control Board, and the California Integrated Waste Management Board. The RWQCB maintains a Fuel Leaks List for the Bay area and the North Bay Toxics List of environmentally impaired properties.

Local

Certain state laws require implementation by local authorities; the California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) is an example of such a law. The Business Plan Act requires that any business that handles over 500 pounds of hazardous materials prepare and submit to the local Administering Agency a business plan for emergency response to a release or threatened release of a hazardous material, which must include the following:

- details, including floor plans, of the facility and business conducted at the site;
- an inventory of hazardous materials that are handled or stored on the site;
- an emergency response plan that includes procedures for immediate notification of the administering agency and local emergency rescue personnel, mitigation of a release to minimize any potential harm, and evacuation of the site; and
- a training program in safety procedures and emergency response for new employees, and an annual refresher course for all employees.

Business Plans must be reviewed and, if necessary, updated biennially. A substantial change in a hazardous material handler's operations require that an updated plan be submitted to the Administering Agency with 30 days of the change. Hazardous material inventory forms must be updated annually. The Contra Costa County Health Services Department Hazardous Materials Division is the designated local Administrative Agency of the Business Plan Act.

The Business Plan Act also allows an administering agency to require designated business to submit a risk management and prevention program (RMPP). The RMPP addresses all administrative and operational programs of a business that are designed to prevent acutely hazardous materials accidents. Acutely hazardous materials are defined as those materials that meet the criteria of extremely hazardous under CCR Title 22 Section 66720.

Any business that handles amounts of any acutely hazardous material greater than the Superfund Amendments Reauthorization Act Threshold Planning Quantity must submit the acutely hazardous materials registration form (AB 3777 Inventory Form) to the Administering Agency along with the business plan. The Administering Agency may then request an RMPP to be prepared based on preliminary analysis of the risk. The RMPP must be developed within 12 months of the request. The RMPP must include the following:

- a description of each accident involving acutely hazardous materials that had occurred on the premises within the previous three years;
- a report detailing the conditions of equipment used to handle acutely hazardous materials and any schedules for testing and maintenance;
- design, operating and maintenance controls which minimize the risk of accident;
- detection, monitoring, or automatic control systems to minimize potential accident risks;
- a schedule for implementing future response procedures;
- audits, inspections, and record keeping procedures for the RMPP; and
- an identification of personnel at the business who are responsible for carrying out specified RMPP tasks.

The criteria used by the Contra Costa County Health Services Department Hazardous Materials Division to determine if a RMPP is required are based on: (1) the amount of acutely hazardous material present, its volatility, and its toxicity; (2) the distance to the nearest receptor (which includes public roads); (3) the amount of material that could be released in one incident; and (4) the molecular weight of the acutely hazardous material (Hallenbeck, 1991).

If an RMPP is required to be prepared, it is based on an assessment of the operation of the business and must consider the hazards arising from operating error, equipment failure, or external events. Off-site consequence analysis must be performed that assumes a worst case air dispersion scenario.

The Contra Costa County Health Services Department, Hazardous Materials Division, oversees cleanup of contaminated soil at hazardous waste sites in the county. At sites where contamination is suspected or known to occur, the project sponsor performs a site investigation. If contamination is discovered during an excavation, the county requires that the project be halted for an indefinite time while further studies are conducted (Benike, 1992).

The site investigation report and the consultant's recommendations for site remediation must be submitted to the County Health Services Department for review and approval. At that time the County may require any additional measures it deems necessary. Depending on circumstances, other agencies, such as DTSC and the RWQCB, may become involved in overseeing cleanup of a site. If groundwater contamination is an issue at the site, the RWQCB also reviews the site investigation report and remediation plans. Both agencies have approval authority over site cleanup activities and can require additional or stricter remediation measures (Benike, 1992).

The City of Hercules has legal jurisdiction over hazardous waste produced or hazardous materials handled within the city limits (Network Environmental Systems, Inc., 1990). This includes hazardous wastes and materials that may affect areas within the city as a result of accidents, spills, unlawful dumping, or even natural processes such as runoff or leaching. The Hercules *General Plan* includes a Hazardous Waste Management Plan as one of its elements, with goals of achieving safe and effective management of hazardous waste within the City of Hercules and protection of public health and safety and the environment (Network Environmental Systems, Inc., 1990). The Hercules Municipal Code, Title 10, includes language to implement the Hazardous Waste Management Plan, designed to control development and maintenance of hazardous waste facilities within the City and to protect the health and environment of the residents (City of Hercules, 1991b). The City of Hercules does not normally become involved in cleanup of hazardous waste sites, but tracks progress by state agencies and site owners in meeting cleanup schedules and requirements. Jurisdiction over cleanup of the two known contaminated parcels in the project area (see discussion in following sections) has been assumed by Cal-EPA (Network Environmental Systems, Inc., 1990).

There are no licensed treatment, storage, or disposal facilities within the city for disposal of designated or hazardous wastes. Most industrial waste generated within the city limits is exported to outside facilities for recycling, treatment, or disposal. Wastes classified as hazardous and extremely hazardous that are not amenable to recycling are transported to Class I waste disposal facilities at Kettleman Hills or out of state (Network Environmental Systems, Inc., 1990).

Pipeline Regulations

Regulations pertaining to interstate pipelines used for the transportation of natural and other gases, and hazardous liquids are contained in the Code of Federal Regulations, Title 49 (49 CFR). Interstate regulations governing hazardous material pipelines are enforced by the U.S. Department of Transportation. The regulations for gas pipelines set requirements for the reporting of incidents, pipeline design, construction materials and procedures, testing, and operations and maintenance.

Intrastate gas pipelines are regulated through General Order No. 112-D, and enforced by the State Public Utilities Commission. State regulations governing gas pipelines have similar requirements as federal regulations, but are more stringent. Regulations pertaining to intrastate hazardous liquid pipelines are contained in Government Code, Sections 40600 to 52999, and enforced by the State Fire Marshal. State regulations governing hazardous liquid pipelines have similar requirements as federal regulations.

The State Government Code Sections 40600 to 52999, Volume 36, requires procedures and technology to be adopted for installation, operation and monitoring of intrastate hazardous liquid pipelines. Requirements for hazardous liquid pipelines address new pipeline design and construction, pipeline testing, easements, maps/diagrams, notification of incidents and contingency plans. Additional regulations governing pipelines located near rail lines include specifications for depth, testing procedures, inspections, training, and safety/check valves.

Hazardous Material Worker Safety Requirements

Properties found to be contaminated are subject to special worker safety requirements both to protect construction workers during demolition and excavation and to protect site investigation and cleanup workers who are performing site studies or site remediation activities. Site safety plans would be required in compliance with federal and state Occupational Safety and Health Administration (OSHA) requirements. Such site safety plans typically include provisions for safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency response and fire prevention plan preparation.

The California Occupational Safety and Health Administration (Cal/OSHA) and the Federal Occupational Safety and Health Administration (Fed/OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. Under authority

of the Occupational Safety and Health Act of 1970, Fed/OSHA has adopted numerous regulations pertaining to worker safety (contained in the Code of Federal Regulations, Title 29). These regulations set standards for safe workplaces and work practices, including standards relating to hazardous material handling. In California, Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 CFR. Cal/OSHA standards are generally more stringent than federal regulations.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace (detailed in Title 8 of the California Code of Regulations) include requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites. The hazard communication program requires that Material Safety Data Sheets (MSDSs) be available to employees and that employee information and training programs be documented.

**FISCAL IMPACT STUDY
HERCULES LAND USE PLAN**

Prepared for:
CITY OF HERCULES

Prepared by:
SEDWAY & ASSOCIATES

Date of Report:
FEBRUARY 2, 1995

Sedway & Associates

Real Estate Economics

Lynn M. Sedway, CRE

February 2, 1995

Mr. Karl F. Heisler
Environmental Sciences Associates, Inc.
301 Brannan Street
San Francisco, CA 94107-1811

Dear Mr. Heisler:

Sedway & Associates (S&A) is pleased to submit this fiscal impact study for the 24 parcels considered in the EIR for the City of Hercules. This report is a macro-level analysis of the public revenues and costs that will accrue to the General Fund and select Special Revenue Funds of the City of Hercules in conjunction with development of the 24 identified parcels. This report also provides fiscal impact findings regarding additional services and districts that will be affected by development of the project, including the Rodeo-Hercules Fire Protection District and West Contra Costa Unified School District. The scope of this assignment did not include market analysis.

The project considered in this EIR consists of approximately 600 acres. At the designated build-out in 2010, the proposed project land use plan is estimated to include 2,636,301 square feet of office/R&D space; 362,420 square feet of industrial space; 2,006,397 square feet of commercial space; and 3,816 multifamily residential units. The proposed project scenario, deemed to be the most likely scenario, is the focus of the quantitative fiscal impact analysis. The proposed project development is estimated to add 15,331 employees and 11,029 residents to the City of Hercules.

Three alternative scenarios — commercial emphasis alternative, residential emphasis alternative, and reduced density alternative — are discussed qualitatively. The commercial emphasis alternative includes 740,308 additional square feet of commercial development and 1,950 fewer multifamily residential units than the proposed project. The residential emphasis alternative includes 378 additional residential units and 110,419 fewer square feet of commercial development. The reduced density alternative includes 1,222,144 fewer square feet of commercial development and 2,244 fewer residential units.

S&A's analysis concludes that, upon full absorption in 2010, the development, under the proposed project land use plan, will produce a net annual fiscal benefit of \$4,844,100 to

Mr. Karl F. Heisler
February 2, 1995
Page 2

the City of Hercules. The project is estimated to provide \$6,450,700 to the City and require expenditures of \$1,606,600.

In addition to the ongoing revenues, the project will generate substantial one-time revenues to the City in the form of community development taxes, property transfer taxes, and traffic impact fees.¹ Thus far, the known net one-time revenues to be generated by the project total an estimated \$18,772,400. A study is currently underway to determine additional facility and infrastructure requirements (e.g., wastewater transportation and drainage). The City is also analyzing improvement financing options, such as an assessment district.

Aside from the City's General and Special Revenue Funds, S&A analyzed the project's annual and one-time impact on fire and school services. These services are not funded through the City of Hercules' General Fund. Instead, each of these services maintains its own budget and is funded separately through property tax and other revenues. The findings indicate that the development will generate annual ongoing fiscal benefit of \$187,900 for fire services and \$1,627,700 for school services. The one-time impacts are projected at \$1,464,300 and (\$6,442,300), respectively.

Sedway & Associates also assessed the relative impact of the commercial emphasis alternative and residential emphasis alternative land use plans. The commercial emphasis alternative land use plan includes more commercial and less residential development than the proposed project land use plan. The commercial emphasis alternative scenario is expected to generate approximately \$1.2 million additional net annual income to the City, primarily due to increased sales tax revenues. However, the one-time net benefit is estimated to be approximately \$1.7 million less than the proposed project land use plan. This is primarily attributable to the lower community development tax, which is based on the number of residential units. The one-time cost to the school district is also considerably less given the reduced residential population.

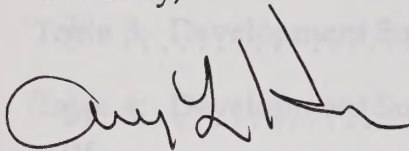
The residential emphasis alternative land use plan is estimated to generate slightly less net revenue to the City on an annual basis. This is due to the slight decrease in retail sales tax revenue and slight increase in City expenditures, as less commercial and more residential development is proposed. The projected one-time revenue is higher because of the impact more residential units has on the community development tax calculation. Further, the one-time cost to the school district is estimated to be higher.

¹Fees will be collected only if there is an impact, as required by AB1600.

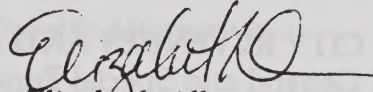
Mr. Karl F. Heisler
February 2, 1995
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We have enjoyed working with you on this important project. Please call if you have any questions or comments regarding this report.

Sincerely,



Amy L. Herman
Senior Vice President



Elizabeth Allen
Senior Associate

ALH/EA:nam

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I. INTRODUCTION AND SUMMARY OF FINDINGS

INTRODUCTION

The fiscal analysis prepared for the Environmental Impact Report (EIR) provides estimates of the marginal revenues and the marginal costs associated with the proposed development. The purpose of this macro-level analysis is to determine whether the development of the 24 parcels considered in this EIR will result in a positive or negative fiscal impact for the City of Hercules and the local service districts.

This analysis assesses whether the estimated revenues generated by the development exceed or fall short of expenditures required for municipal services attributable to the development. The study further identifies one-time revenues accruing to the City and other select taxing districts that will provide services to the development, such as the Rodeo-Hercules Fire Protection District and West Contra Costa Unified School District.

The project considered in this EIR consists of approximately 600 acres. At the designated build-out in 2010, the proposed project land use plan is estimated to include 2,636,301 square feet of office/R&D space; 362,420 square feet of industrial space; 2,006,397 square feet of commercial space; and 3,816 multifamily residential units. The proposed project scenario, deemed to be the most likely scenario, is the focus of the quantitative fiscal impact analysis. The proposed project development is estimated to add 15,331 employees and 11,029 residents to the City of Hercules (see Table 1).

Three alternative scenarios, commercial emphasis alternative and residential emphasis alternative, are discussed qualitatively. The commercial emphasis alternative includes 740,308 additional square feet of commercial development and 1,950 fewer multifamily residential units than the proposed project. The residential emphasis alternative includes 378 additional residential units and 110,419 fewer square feet of commercial development. The reduced density alternative includes 1,222,144 fewer square feet of commercial development and 2,244 fewer residential units (see Tables 2, 3 and 4).

SUMMARY OF FINDINGS

Sedway & Associates' (S&A's) fiscal impact analysis provides findings pertinent to the proposed development of the 24 parcels, under the proposed project land use plan, considered in the EIR. These findings are summarized below and presented in Table 5.

**TABLE 1
DEVELOPMENT SUMMARY
PROPOSED PROJECT ALTERNATIVE**

	Square Feet	Employees	Units	Residents	Employed Residents
Office/R&D	2,636,301	10,545	NA	NA	NA
Industrial	362,420	453	NA	NA	NA
Commercial	2,006,397	4,333	NA	NA	NA
Multifamily Residential - Rental (1)	NA	NA	1,908	5,515	2,793
Multifamily Residential - For Sale (1)	NA	NA	1,908	5,515	2,793
Total	5,005,118	15,331	3,816	11,029	5,585

Notes:

(1) Sedway & Associates assumed that the residential units were equally divided between rental and for-sale.

Sources: Environmental Science Associates, Inc.; DKS Associates; and Sedway & Associates.

**TABLE 2
DEVELOPMENT SUMMARY
COMMERCIAL EMPHASIS ALTERNATIVE**

	Square Feet	Employees	Units	Residents	Employed Residents
Office/R&D	2,636,301	10,545	NA	NA	NA
Industrial	362,420	453	NA	NA	NA
Commercial	2,746,705	5,979	NA	NA	NA
Multifamily Residential - Rental (1)	NA	NA	933	2,697	1,365
Multifamily Residential - For Sale (1)	NA	NA	933	2,697	1,365
Total	5,745,426	16,977	1,866	5,393	2,730

Notes:

(1) Sedway & Associates assumed that the residential units were equally divided between rental and for-sale.

**TABLE 3
DEVELOPMENT SUMMARY
RESIDENTIAL EMPHASIS ALTERNATIVE**

	Square Feet	Employees	Units	Residents	Employed Residents
Office/R&D	2,636,301	10,545	NA	NA	NA
Industrial	362,420	453	NA	NA	NA
Commercial	1,895,978	4,088	NA	NA	NA
Multifamily Residential - Rental (1)	NA	NA	2,097	6,061	3,070
Multifamily Residential - For Sale (1)	NA	NA	2,097	6,061	3,070
Total	4,894,699	15,086	4,194	12,122	6,139

Notes:

(1) Sedway & Associates assumed that the residential units were equally divided between rental and for-sale.

Sources: Environmental Science Associates, Inc.; and Sedway & Associates.

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**TABLE 4
DEVELOPMENT SUMMARY
REDUCED DENSITY ALTERNATIVE**

	Square Feet	Employees	Units	Residents	Employed Residents
Office/R&D	2,028,807	8,115	NA	NA	NA
Industrial	226,512	283	NA	NA	NA
Commercial	1,527,655	3,395	NA	NA	NA
Multifamily Residential - Rental (1)	NA	NA	786	2,272	1,148
Multifamily Residential - For Sale (1)	NA	NA	786	2,272	1,148
Total	3,782,974	11,793	1,572	4,543	2,295

Notes:

(1) Sedway & Associates assumed that the residential units were equally divided between rental and for-sale.

Sources: Environmental Science Associates, Inc.; DKS Associates; and Sedway & Associates.

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TABLE 5
PROJECTED NET FISCAL IMPACT ON THE CITY OF HERCULES
AND OTHER SERVICE PROVIDERS AT BUILD-OUT
PROPOSED PROJECT ALTERNATIVE
FISCAL 1994-95 DOLLARS

Impact on City of Hercules	Annual Impact	One-Time Impact
<i>Impact On City of Hercules General Funds</i>		
Property Tax	\$136,700	
Retail Sales Tax	\$4,503,400	
Utility Tax	\$752,400	
Business License Fees	\$82,400	
Motor Vehicle License In-Lieu	\$399,800	
Homeowners' Exemption	\$5,900	
Franchise Fees	\$130,400	
Parks & Recreation Fees	\$439,700	
Gas Tax (net revenue)	\$0	
Property Transfer Tax		\$135,200
Community Development Tax		\$5,724,000
Traffic Mitigation Fees		\$12,913,200
Total Impact On Revenues	\$6,450,700	\$18,772,400
<i>Impact On City of Hercules Expenditures</i>		
Community Development	\$0	
General Government	\$434,900	
Parks & Recreation	\$568,100	
Public Safety	\$546,000	
Public Works	\$57,600	
Total Impact On Expenditures	\$1,606,600	\$0
<i>Net Fiscal Impact on the City of Hercules</i>	<i>\$4,844,100</i>	<i>\$18,772,400</i>

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S&A's analysis concludes that, upon full absorption, the project will produce a net annual fiscal benefit of \$4,844,100 to the City of Hercules. The project is estimated to contribute \$6,450,700 to the City in the form of property taxes, retail sales taxes, and utility taxes, as well as business license taxes, motor vehicle license in-lieu fees, homeowners' exemption, franchise fees, and parks and recreation fees. The estimated annual expenditures required for municipal service delivery for the proposed development total \$1,606,600. These expenditures will be required to provide services for general government, parks and recreation, public works, and public safety. Because the vast majority of community development costs are one-time and covered by user fees, the incremental expenditure is assumed to be zero.

In addition to the ongoing revenues, the project will generate substantial one-time revenues to the City in the form of property transfer taxes, community development tax, and traffic mitigation fees.¹ Thus far, the known one-time net revenues to be generated by the project total an estimated \$18,772,400. A study is currently underway to determine additional facility and infrastructure requirements (e.g., wastewater transportation and drainage). The City is also analyzing improvement financing options, such as an assessment district.

Aside from the City's General and select Special Revenue Funds, this analysis also looked at the project's annual and one-time impact on schools and fire services. These services are not funded through the City of Hercules' General Fund. Instead, each of these services maintains its own budget and is funded separately through property tax revenues. The findings indicate that the development will generate annual ongoing fiscal benefit of \$187,900 for fire and \$1,627,700 for school services. The one-time impacts are projected at \$1,464,300 and (\$6,442,300), respectively.

¹Fees will be collected only if there is an impact, as required by AB1600.

II. METHODOLOGY

This macro-level study examines the potential fiscal impact of development of the 24 parcels on the revenues and expenditures of the City of Hercules and other relevant service providers. The analysis is at a fixed point in time given the proposed development plan. The goal of this fiscal impact study is to determine the net benefit or deficit accruing to the project's municipal service providers, including the City of Hercules, Rodeo-Hercules Fire Protection District, and West Contra Costa Unified School District.

To determine the net benefit or deficit for the relevant services, this report identifies and estimates the incremental revenues and costs that can be directly associated with the project. Annual revenues are contributed by the project as a result of property taxes, retail sales taxes, and utility taxes, as well as business license fees, motor vehicle license in-lieu fees, homeowners' exemption, franchise fees, and parks and recreation fees. Annual and one-time expenditures resulting from the project development are the estimated costs directly attributable to the project or costs required to maintain the same level of service currently provided by the City. In instances where the same level of service can be provided by the existing City workforce and infrastructure, no additional costs are assumed. The difference between estimated revenues and costs comprises the net fiscal impact.

S&A examined the City of Hercules' proposed operating budget for fiscal year 1994-95 to identify potential revenue and expenditure items impacted by the project. General Fund expenditures were evaluated line by line for potential impact by the project. Additionally, incremental costs associated with the project were discussed with the directors or representatives of key City departments likely to be affected by the project, such as Finance, Community Development, Public Works, Police, and the City Manager's office.

The revenue and cost projections included in this report are generally based on one of two estimating techniques: (1) marginal revenue and marginal cost; and (2) average revenue and average cost. The marginal impact is the actual change in revenues and costs attributable to the development. For example, the marginal increase in property taxes is based on the projected increase given the estimated development valuation and property tax rate allocation.

It is not always possible or relevant to estimate the marginal increase in revenues or costs resulting from new development. For example, additional administrative government functions may be required to support new development; however, it is difficult to predict the magnitude of the marginal impact. In these cases it is simpler to estimate an average impact on revenues or costs given relevant population bases. This estimation method is

also more relevant when no tangible marginal costs are identified but when some additional costs will be incurred by existing staff.

The two primary average cost bases deemed appropriate for this fiscal impact analysis are the daytime population and resident population. The daytime population, which includes both residents and employees, is equivalent to the sum of the residents of the City of Hercules and one-half the number of people employed in the City. Use of the daytime population base assumes that people who live in the City place proportionately greater demands on services than people who work, but do not live, in the City. Use of the resident population base implies that there are some City services that benefit only residents. Further, including only one-half of the employees accounts for the fact that some persons both work and live in the City. In addition to the above bases, average costs were also determined based on the supply of owner-occupied homes (homeowners' exemption) and the number of cable subscribers (cable franchise fee revenues).

For purposes of this report, demographic data are estimated for January 1995, which corresponds to the mid-point of fiscal year 1994-95. Based on the City of Hercules' estimates, the January 1995 residential population is 18,900 in 6,345 housing units. The number of jobs is estimated by the City at 3,025 (Hembree, 1994). Thus, the January 1995 daytime population is estimated at 20,413. According to the Association of Bay Area Governments, *Projections 94*, the average Hercules household is projected to have 2.89 residents in 2010, the estimated year of project build-out. The number of cable subscribers is estimated to be 5,000 (Jones, 1994).

The fiscal impact cited in this report is based upon full build-out and absorption of the proposed project development scenarios. Until the project is fully absorbed, the impact will be less than that stated in this analysis. All costs and revenues presented in the report are stated in constant fiscal year 1994-95 dollars.

III. PROJECTED CITY REVENUES AND SERVICE COSTS

ANTICIPATED GENERAL AND SPECIAL FUND REVENUES

This section of the report summarizes the public revenues estimated to accrue to the City's General Fund and Special Revenue Funds as a result of the development considered in the EIR. The project will provide a significant annual increase in General Fund revenues, summarized in Table 6. Annual ongoing revenues are anticipated from increased property taxes, retail sales taxes, utility taxes, business license fees, motor vehicle license in-lieu fees, homeowners' exemption, franchise fees, and parks and recreation fees. In addition, the project will provide substantial one-time property transfer taxes (while transfer taxes will persist over time as properties resell, the analysis conservatively includes only a one-time transfer tax), community development tax, and traffic impact fee.

Planning and approval fees charged in connection with the development of the project will be used to offset the costs incurred by the City of Hercules. Since planning and approval fees generally offset costs and provide negligible net revenues, they are not considered in this analysis.

RECURRING REVENUES

Property Taxes. Property taxes will increase after the project parcels are developed. Only parcels outside the Redevelopment Project Area are included in this analysis. For purposes of tax calculation, S&A determined estimated assessed values for office/R&D, industrial, commercial, multifamily for-sale, and multifamily rental development based on the income approach and comparable sales approach. Table 7 highlights the methodology utilized to derive estimated average assessed values, by land use. Given the study's scope and budget, the average assessed values are very preliminary. The office, industrial, retail and apartment valuations are based on the income approach. The condominium average assessed value is based on the comparable sales approach. Market data were collected by Sedway & Associates. As detailed in Table 7, the average assessed values per square foot are \$90 for office/R&D, \$37 for industrial, and \$114 for retail. Apartment and condominium average assessed value per unit are \$79,700 and \$120,000.

Contra Costa County receives property taxes equal to 1.0 percent of the assessed value. This is a statewide standard established by Proposition 13. As indicated in Table 8, at build-out, the project parcels outside the Redevelopment Area are expected to contribute approximately \$2.5 million in property taxes annually. To calculate the portion allocated to the city, which is a low property tax city, S&A utilized the tax rate of 5.56 percent from

TABLE 6
ANALYSIS OF PROJECTED IMPACT ON CITY OF HERCULES REVENUES AT BUILD-OUT
PROPOSED PROJECT ALTERNATIVE
FISCAL 1994-95 DOLLARS

City of Hercules Revenue Items	1994-95 Budget	Budgetary Impact (1)	Revenue Per Relevant Basis (2)	Annual Impact (3)
Taxes				
Property Tax	\$623,000	See Table 7		\$136,700
Property Transfer Tax	\$38,000	One-Time Revenue		\$0
Retail Sales Tax	\$470,000	See Table 8		\$4,503,400
Utility Tax	\$870,000	See Table 9		\$752,400
Business License Tax	\$90,000	Per Daytime Population	\$4.41	\$82,400
Taxes Subtotal	\$2,091,000			\$5,474,900
Intergovernmental Transfers				
Motor Vehicle In Lieu Fees	\$685,070	Per Resident Population	\$36.25	\$399,800
Vehicle Abatement Fees	\$15,000	No Projected Impact		\$0
Homeowners Exemption	\$15,000	Per Qualified Households(4)	\$3.07	\$5,900
Off Highway Motor Vehicle Fees	\$305	No Projected Impact		\$0
Intergovernmental Transfers Subtotal	\$715,375			\$405,700
Franchise Fees				
Gas	\$20,502	Per Daytime Population	\$1.00	\$18,800
Electric	\$22,634	Per Daytime Population	\$1.11	\$20,700
Garbage	\$37,884	Per Daytime Population	\$1.86	\$34,700
Cable TV	\$92,000	Per Cable Subscriber (5)	\$18.40	\$56,200
Franchise Fees Subtotal	\$173,020			\$130,400
Public Safety Fines/Fees	\$28,000	No Projected Impact		\$0
Use of Money	\$1,187,500	No Projected Impact		\$0
Development Service Fees	\$371,600	Off-set by Expenditures		\$0
Park & Recreation Fees	\$753,500	Per Resident Population	\$39.87	\$439,700
Miscellaneous Revenue	\$450,804	No Projected Impact		\$0
Restricted Revenues	\$705,628	No Projected Impact		\$0
				\$439,700
Total General Fund Revenues	<u>\$6,476,427</u>			

Total Recurring General Fund Revenues Due to Project	<u>\$6,450,700</u>
One-time Property Transfer Tax (See Table 7)	\$135,200
One-time Community Development Tax (See Table 10)	\$5,724,000
One-time Traffic Impact Fee (See Table 10)	<u>\$12,913,200</u>
Total One-time Revenues Due to Project	<u>\$18,772,400</u>

- Notes:**
- (1) Daytime population is calculated to be the sum of the residents of the City of Hercules plus half the number employed in the City, and is estimated to be 20,595 as of January 1995. The population of Hercules in January 1995 is assumed to be 18,979. The number of January 1995 jobs is estimated to be 3,231.
 - (2) Reflects the budgeted amount for the respective department divided by the relevant population basis, as indicated.
 - (3) Reflects the impact of an increase in the City of Hercules' population based on 3,816 new multifamily and 4,944,569 square feet of new office/R&D, industrial, and commercial development (see Table 1). Figures rounded.
 - (4) According to the City of Hercules, 4,891 households qualify for the homeowner's exemption. The analysis assumes 50 percent of the project units will be owner-occupied and qualify for the exemption.
 - (5) Currently 5,000 households subscribe to cable. Assume that 80 percent of new households subscribe to cable.

Sources: City of Hercules, 1994-95 Preliminary Budget; Marie Simons, Director of Finance, City of Hercules; Gary Hembree, Director of Community and Business Development, City of Hercules; Association of Bay Area Governments, "Projections - 94"; and Sedway & Associates.

TABLE 7
ESTIMATED ASSESSED VALUES
PROPOSED PROJECT ALTERNATIVE
FISCAL 1994-95 DOLLARS

	Office /R&D (per square foot)	Industrial (per square foot)	Retail (per square foot)	Apartment (per unit)	Condominium (per unit)
Rent/Month	\$1.00	\$0.35	\$1.00	\$850	NA
Less: Vacancy Factor	5.0%	5.0%	5.0%	5.0%	NA
Gross Effective Rent	\$0.95	\$0.33	\$0.95	\$808	NA
Less: Operating Expenses	25.0%	13.0%	5.0%	26.0%	NA
NOI for Assessed Value	\$0.71	\$0.29	\$0.90	\$598	NA
<i>X 12 Months</i>	<i>\$8.55</i>	<i>\$3.47</i>	<i>\$10.83</i>	<i>\$7,171</i>	<i>NA</i>
Capitalization Rate	9.5%	9.5%	9.5%	9.0%	NA
<i>Assessed Value Per S.F.</i>	<i>\$90</i>	<i>\$37</i>	<i>\$114</i>	<i>NA</i>	<i>NA</i>
<i>Assessed Value Per Unit</i>				<i>\$79,700</i>	<i>\$120,000</i>

Sources: Ann Roulac, "Bay Area Apartment Market Report, 1993"; Ryness Corporation, "The Ryness Report"; Ritchie & Ritchie; The Galbreath Co.; and Sedway & Associates.

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TABLE 8
ANALYSIS OF PROJECTED PROPERTY TAX AND TRANSFER TAX REVENUE AT BUILD-OUT (1)
PROPOSED PROJECT ALTERNATIVE
FISCAL YEAR 1994-95 DOLLARS

Land Use	Number of Sq.Ft.	Number of Units (2)	Anticipated Value/SF (3)	Anticipated Value/Unit (3)	Anticipated Value	Property Tax Revenues (4)		One Time Transfer Tax (5)	
						County Total	City Total	County Total	City Total
Office/R&D	0	NA	\$90		\$0	\$0	\$0	\$0	\$0
Industrial	362,420	NA	\$37		\$13,409,500	\$134,100	\$7,500	\$14,800	\$7,400
Commercial	1,107,087	NA	\$114		\$126,207,900	\$1,262,100	\$70,200	\$138,800	\$69,400
Multifamily - Rental	NA	532		\$79,700	\$42,400,400	\$424,000	\$23,600	\$46,600	\$23,300
Multifamily - For Sale	NA	532		\$120,000	\$63,840,000	\$638,400	\$35,500	\$70,200	\$35,100
Totals/Averages	1,469,507	1,064			\$245,857,800	\$2,458,600	\$136,700	\$270,400	\$135,200

Notes:

- (1) Analysis is exclusive of parcels 1, 2, 3, 6, 9, 10, 11, 12, 13, D and E which are located in the Redevelopment Area.
- (2) Sedway & Associates assumed that the residential units were equally divided between rental and for-sale.
- (3) Sedway & Associates estimated assessed values, as detailed in Table 6.
- (4) This analysis assumes property tax allocation for Tax Rate areas (TRA) 04002 and 04009. Properties in these TRAs include properties owned by Hercules Properties, Inc., Gelsar, Inc., and MRB Associates. The City of Hercules is projected to receive 5.56 percent of the one percent property tax collected by the County. This represents property tax revenue at build-out. Figures are rounded.
- (5) The transfer tax is \$1.10 for every \$1,000 in sales price. This tax is collected by the County of Contra Costa. For sales occurring within Hercules, the City receives one-half the amount collected by the County. Figures are rounded.
The City Council has authorized an future increase in the transfer tax; however, the increase would be for a fixed time period.

Sources: Environmental Science Associates, Inc.; City of Hercules Finance Department; Contra Costa County Recorder's Office; and Sedway & Associates.

Tax Rate Areas (TRA) 04002 and 04009. Properties in TRA 04002 and 04009 include parcels owned by Hercules Properties, Inc., Gelsar, Inc., and MRB Associates, which account for approximately 50 percent of the total project acreage. Based on the City's allocation of 5.56 percent, annual property taxes from the project parcels will total \$136,700 at build-out.

Retail Sales Taxes. Additional retail sales tax revenue will derive primarily from three sources: (1) new residents; (2) new employees; and (3) new commercial development. Table 9 summarizes the anticipated increase in retail sales tax from these three sources, which totals \$4,503,400 per year.²

Based on the most recent data from the State Board of Equalization, the average annual per capita taxable retail spending in the City is \$1,100. This is a very low figure compared to other communities and represents the current limited supply of retail stores within the City. For instance, the average per capita taxable retailing spending in Richmond is approximately \$6,000. Assuming that the additional 11,029 residents spend at the historic per capita level at existing stores, taxable retail sales from new residents will increase by \$12,131,900.

Another source of increased taxable retail sales is from new employees. Based on data from the International Council of Shopping Centers, suburban employees spend approximately \$2,500 per year near their place of work. To be conservative, Sedway & Associates has included only the lunch expenditure figure of \$1,100 per year per employee. Based on the projection of 15,331 new employees, the estimated increase in retail taxable sales from employees is \$16,864,100.

Finally, the new commercial development will also be a source of additional retail sales tax revenue. Under the proposed project alternative, 2,006,397 square feet of commercial space will be developed. This is a significant increase over the existing supply of retail in the City of Hercules. Based on data from the Urban Land Institute's *Dollars and Cents of Shopping Centers: 1993*, the average sales per square foot at community and neighborhood retail centers in the western United States is \$210, in 1994-95 fiscal year dollars. Thus, the estimated increase in taxable retail sales is estimated at \$421,343,400. Combined, the total increase in taxable retail spending in the City of Hercules is \$450,339,400. The City receives 1.0 percent of the total taxable sales, or approximately \$4,503,400 per year.

²A market study has not been prepared to determine the future demand of retail in Hercules. Thus, there is no guarantee that the estimated sales tax revenue will be realized.

TABLE 9
ANALYSIS OF PROJECTED IMPACT ON SALES TAX COLLECTIONS AT BUILD-OUT (1)
PROPOSED PROJECT ALTERNATIVE
FISCAL 1994-95 DOLLARS

	Annual Impact
<i>Residents</i>	
Estimated Retail Spending per Capita in the City of Hercules (2)	\$1,100
Estimated Population Increase	11,029
Estimated Total Increase in Retail Spending From New Residents	\$12,131,900
<i>Employees</i>	
Estimated Retail Spending per Employee in the City of Hercules (3)	\$1,100
Estimated Employee Increase	15,331
Estimated Total Increase in Retail Spending From New Employees	\$16,864,100
<i>New Commercial Development</i>	
Estimated Increase in Retail Development	2,006,397
Estimated Sales Per Square Foot (4)	\$210
Total Estimated Increase in Sales	\$421,343,400
Total Increase in Retail Spending in the City of Hercules	\$450,339,400
City of Hercules Sales Tax Rate	1%
Total Annual Increase in Sales Tax Revenues to the City (rounded)	<u>\$4,503,400</u>

Notes:

- (1) A market study has not been prepared as part of this analysis. Thus, the annual sales tax revenue may be overstated. The largest percentage of sales tax revenues is estimated to come from the planned commercial development.
- (2) The average per capita taxable retail spending estimate in Hercules is calculated based on the most recent taxable sales data from the State Board of Equalization. This is a conservative assumption because per capita spending for new and existing residents will increase when Hercules increases its commercial development.
- (3) Based on ICSC 1988 "Office Worker Retail Spending" survey. Conservatively, included only lunch purchases typical in a suburban area with limited retail.
- (4) Based on "ULI Dollars and Cents Shopping Center Guide, 1993" median tenant sales data per square foot for community and neighborhood centers in the west.

Sources:

State Board of Equalization; International Council of Shopping Centers; Urban Land Institute, "ULI Dollars and Cents Shopping Center Guide, 1993"; and Sedway & Associates.

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Utility Taxes. The City receives utility tax revenue from residents and businesses based on 6.00 percent of gross utility bills. The estimated utility tax revenue per household is estimated at \$74 per year based on the City's estimate of \$65 per year per household, adjusted for the increased rate from 5.25 to 6.00 percent (Simons, 1994). Thus, at build-out, the City will receive an additional utility tax revenue of \$282,400 from the new households. The total estimated annual utility tax revenue from businesses is estimated to be \$230,000 from office/R&D users, \$40,000 from industrial users, and \$200,000 from commercial users given typical utility bills and project development plans (Felton, 1994). In total, the City is projected to receive an additional \$752,400 annually in utility tax revenue (see Table 10).

Business License Taxes. Businesses operating in the City pay an annual business license tax. Calculation of the tax is based on gross receipts; therefore, incremental revenues are generally based on the population served. Based on the 1994-95 preliminary budget, the City expects to receive \$4.41 per daytime population. Accordingly, the incremental business license taxes are projected at \$82,400 per year (see Table 6). This estimate may underestimate the incremental increase given the substantial amount of new commercial development planned.

Intergovernmental Transfers. Revenues to the City of Hercules from motor vehicle license in-lieu fees are a share of the tax on motor vehicles registered in the state. The state prohibits cities from taxing motor vehicles. Instead, the state provides a proportion of these funds to cities on a per capita basis. Based on the 1994-95 preliminary budget, the City expects to receive motor vehicle in-lieu fees of \$36.25 per resident (see Table 6). Accordingly, the incremental motor vehicle in-lieu fees resulting from the project are estimated at \$399,800 per year.

The state also provides a property tax rebate to homeowners and cities. The 1994-95 budget for homeowners' exemption is estimated at \$3.07 per homeowner household, based on 4,891 qualified residential parcels (Hembree, 1994). S&A assumed that 50 percent of the 3,816 new multifamily residential units were owner-occupied. Thus, the annual marginal impact attributed to the project is estimated at \$5,900 per year (see Table 6). Combined, intergovernmental transfers are estimated at \$405,700.

Franchise Fees. Franchise fees are charged to businesses that hold franchises with the City for delivery of electric, gas, garbage disposal, and cable services. Since the volume of these services is dependent upon the population served, marginal revenues rise with increase in service population or daytime population. According to the preliminary 1994-95 budget, the City is projected to receive \$92,000 in cable franchise fees, or approximately \$18.40 per cable subscriber. Approximately 80 percent of the current households are cable subscribers (Jones, 1994). Assuming that 80 percent of the 3,816 homes projected subscribe to cable, the additional revenues to the City will be \$56,200 per year. The increased

TABLE 10
ANALYSIS OF PROJECTED IMPACT ON UTILITY TAX REVENUES AT BUILD-OUT
PROPOSED PROJECT ALTERNATIVE
FISCAL 1994-95 DOLLARS

	Annual Impact
<i>Households</i>	
Estimated Utility Tax Per Household in Hercules (1)	\$74
Estimated Increase in Number of Households	3,816
Estimated Annual Increase in Household Utility Tax Revenues (rounded)	\$282,400
<i>Businesses (2)</i>	
Estimated Utility Tax from Office/R&D Development	\$230,000
Estimated Utility Tax from Industrial Development	\$40,000
Estimated Utility Tax from Commercial Development	<u>\$200,000</u>
Estimated Annual Increase in Business Utility Tax Revenues (rounded)	\$470,000
Total Estimated Annual Increase in Utility Tax Revenues	<u>\$752,400</u>
Notes:	
(1) This figure is based on discussions with Marie Simons, City of Hercules Finance Director.	
(2) Preliminary estimates provided by Maurice Felton with PG&E, given development projections:	
Sources: Marie Simons, City of Hercules Finance Director; Maurice Felton, PG&E; and Sedway & Associates.	
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revenue from electric, gas, and garbage disposal franchise fees attributed to the project, based on the daytime population basis, is estimated at \$74,200 annually. Therefore, the total incremental franchise fees are estimated at \$130,400 per year (see Table 6).

Parks and Recreation Fees. Revenue to the City of Hercules from parks and recreation fees is anticipated to increase proportionally with the number of people living in the City of Hercules. Based on the 1994-95 preliminary budget, the City expects to receive parks and recreation fees of \$39.87 per resident (see Table 6). S&A estimated marginal parks and recreation fees of \$439,700 per year assuming project build-out. However, the increase in parks and recreation revenues will exceed the increase in parks and recreation expenditures.

Summary. The development of the parcels considered in the EIR is estimated to generate annually recurring revenues to the City of Hercules in the amount of \$6,450,700. Retail sales tax revenue will generate the largest share of the estimated revenue, or 70 percent. Utility tax revenue will then comprise 12 percent of the total, parks and recreation fees 7 percent of the total, and motor vehicle in-lieu fees 6 percent of the total. Finally, property taxes, franchise fees, business license taxes, and homeowners' exemption will cumulatively generate the remainder, 5 percent.

ONE-TIME REVENUES

Property Transfer Tax. Property transfer taxes are incurred upon the sale of property. The current transfer tax is \$1.10 per \$1,000 in sales price (or 0.11 percent). This tax is collected by Contra Costa County. For sales occurring within Hercules, the City receives half of the transfer tax collections. The transfer tax of \$1.10 may be increased; however, to be conservative, future increases were not included in the analysis. Given the estimated assessed values previously discussed, the parcels considered in the EIR that are outside the Redevelopment Area will therefore provide one-time estimated transfer revenues to the City of Hercules of \$135,200 upon build-out (see Table 8).

Transfer taxes accrue to the County and the City whenever property is sold. The analysis assumes transfer tax revenues are generated only once. This assumption is conservative because most properties will be sold multiple times, even up through the end of the build-out period.

Community Development Tax. A community development tax is applied to the development of residential units, at a rate of \$1,500 per unit (McFann, 1994). Pursuant to the estimated 3,816 new residential units, the City will receive an additional one-time community development tax of \$5,724,000 (see Table 11).

TABLE 11
ANALYSIS OF ONE-TIME TAXES AND MITIGATION FEES AT BUILD-OUT
PROPOSED PROJECT ALTERNATIVE
FISCAL 1994-95 DOLLARS

	One-Time Impact
<i>Community Development Tax (1)</i>	
Tax per Residential Unit	\$1,500
Number of Residential Units	3,816
Total Community Development Tax (rounded)	\$5,724,000
<i>Growth Impact Fee</i>	To Be Determined, If Any
<i>Property Transfer Tax (See Table 7)</i>	\$135,200
<i>Traffic Impact Fees (2)</i>	
Impact Fee Per Commercial/Industrial Square Foot (3)	\$2.58
Total Commercial/Industrial Square Feet	5,005,118
Total Traffic Impact Fee (rounded)	\$12,913,200
Total One-Time Taxes and Fees	<u>\$18,772,400</u>

Notes:

- (1) Per Greg McFann, Building Department, City of Hercules. For parks and recreational facilities.
- (2) Per Gary Hembree, Director, Community and Business Development, City of Hercules.
- (3) Fee is not formalized but usually included in development agreements.

Sources: Greg McFann, City of Hercules Building Department; Ron Richardson, City of Hercules Public Works Department; Gary Hembree, Director, Community and Business Development, City of Hercules; and Sedway & Associates.

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Traffic Impact Fee. A traffic impact fee of \$2.58 per square foot of commercial, industrial, and office development is charged by the City through development agreements. This fee is not currently included in the Master Fee Schedule. Given the project's 5,005,118 square feet of non-residential development, the City will receive one-time revenues of \$12,913,200 upon build-out (see Table 11).

ANTICIPATED GENERAL AND SPECIAL FUND EXPENDITURES

This section of the report summarizes the service costs associated with the development of the identified 24 parcels under the proposed project alternative. Anticipated service costs were determined based on interviews with the Director of Finance and other City of Hercules department representatives. The project is expected to have the greatest impact on general government, public safety, and parks and recreation. The impact to parks and recreation will be partially offset by the incremental parks and recreation fees collected.

The following briefly reviews the calculated service costs for the development of the 24 identified parcels. The detail for these calculations is presented in Table 12 .

Community Development

Community development includes the budget line items, community and business development, community development inspections, and public works engineering. The vast majority of expenditures for community development are one-time and covered by fees (Simons, 1994). Thus, no incremental net expenditures are attributable to the project.

General Government

General government includes expenditures for city council, city manager, cable television, personnel, city clerk, finance, and city attorney. Because the City of Hercules currently maintains a comprehensive government, many costs are not expected to increase with future development. Based on the 1994-95 budget, the line items that are likely to increase with future development comprise 14 percent of total City expenditures. Thus, the incremental general government cost is calculated to be 14 percent of total incremental expenditures, or \$224,900. Additionally, several new staff members are anticipated to serve the new development. Specifically, an accountant for the finance department, a full-time deputy city manager, a full-time personnel technician, and an assistant city clerk. The annual salary and benefit costs are estimated at \$50,000, \$80,000, \$40,000, and \$40,000, respectively, or \$210,000. Combined, general government expenditures are projected to increase \$434,900.

TABLE 12
ANALYSIS OF IMPACT ON CITY OF HERCULES EXPENDITURES AT BUILD-OUT
PROPOSED PROJECT ALTERNATIVE
FISCAL 1994-95 DOLLARS

City of Hercules Program Name	1994-95 Budget	Budgetary Impact (1)	Per Relevant Basis (2)	Annual Impact (3)	One-Time Impact (3)
<i>Annual Expenditures</i>					
Community Development	569,954	No Project Impact		\$0	
General Government	1,658,146	Per Budget Allocation (4)	14.0%	\$224,900	
Additional Personnel Costs (5)		Per City Staff Estimate		\$210,000	
Parks & Recreation	973,604	Per Resident Population	\$51.51	\$568,100	
Public Safety	\$1,987,429	See Table 13		\$546,000	To Be Determined
Public Works	\$960,289	See Table 14		\$57,600	
Debt Service	\$540,000	No Project Impact		\$0	
Total Annual Expenditures	<u>\$6,689,422</u>			<u>\$1,606,600</u>	<u>\$0</u>

Notes:

- (1) Daytime population is calculated to be the sum of the residents of the City of Hercules plus half the number employed in the City, and is estimated to be 20,595 as of January 1995. The population of Hercules in January 1995 is assumed to be 18,979. The number of jobs is estimated to be 3,231.
- (2) Reflects the budgeted amount for the respective department divided by the estimating basis.
- (3) Reflects the impact of an increase in the City of Hercules' population based on 3,816 new multifamily and 4,944,569 square feet office/R&D, industrial, and commercial development.
- (4) Reflects variable general government costs as percentage of total budget. Assume incremental government costs will increase proportionally with total incremental costs. Incremental expenditure rounded.
- (5) Includes an Accountant for Finance Department (\$50,000), a Deputy City Manager (\$80,000), Personnel Technician (\$40,000) and an Assistant City Clerk (\$40,000). Salary and benefit estimates were provided by City of Hercules staff.

Sources:

City of Hercules, 1994-95 Preliminary Budget; Marie Simons, Director of Finance, City of Hercules; Association of Bay Area Governments, "Projections 92"; and Sedway & Associates.

Parks and Recreation

The increase in expenditure for parks and recreation expenditures is estimated using the resident population as the basis to calculate incremental costs attributable to development of the 24 identified parcels. Per the 1994-95 budget, parks and recreation expenditures were \$51.51 per resident. Based on the projected increase of 11,029 residents, parks and recreation costs will increase \$568,100. Combining the estimated increase in expenditures and revenues, the net increase in parks and recreation costs is estimated at \$128,400. The net cost to the City may be higher if the increase in user fees is not proportionate with the increase in costs. One particular concern is that the new residents may require a significant increase in senior citizen and teen programs that require City subsidies (Jackson, 1994). Additionally, new park facilities, including a multipurpose sports field, will likely be required for the new residents. At this time, it is projected that development in-lieu fees and exactions will cover the costs.

Public Safety

Marginal cost estimates of providing police protection for the proposed future development were estimated by the Hercules Police Department (Eaves and Miller, 1994).

Based on the department's estimate, an additional 6 sworn officers and 3.5 support staff would be required to service the additional development associated with the build-out of the 24 identified parcels. The personnel cost is estimated at \$60,000 per sworn officer and \$40,000 per support staff. Additionally, four additional fully equipped patrol cars will be required to serve the project area. Patrol cars cost \$23,000 each and have an estimated two-year life. Therefore, the annual cost for patrol cars is \$46,000 (Eaves, 1994). As indicated in Table 13, the total annual expenditure for the additional personnel and vehicles is estimated at \$546,000.

The City is currently considering expanding the existing police station. If the current proposed expansion does not occur, or if the expansion is inadequate, additional one-time costs for a new police station may be attributable to the build-out of the 24 identified parcels.

Public Works

The primary impact on public works is the increase in street and sidewalk maintenance expenditure. The estimated cost of street maintenance is \$2,000 per lane mile per year (Richardson, 1994). DKS Associates estimated 5.5 lane miles for the project; thus, the total incremental street maintenance cost is estimated at \$11,000 per year. This cost does not include maintenance of CalTrans projects.

TABLE 13
ANALYSIS OF PROJECTED IMPACT ON PUBLIC SAFETY AT BUILD-OUT
PROPOSED PROJECT ALTERNATIVE
FISCAL 1994-95 DOLLARS

	Annual Impact	One-Time Impact
Expenditures (1)		
Additional Sworn Officers	\$360,000	
Additional Support Staff	\$140,000	
Additional Equipped Patrol Cars	<u>\$46,000</u>	
Total Annual Impact on Law Enforcement Services	<u>\$546,000</u>	
Building Expansion (2)		<u>To Be Determined</u>
Total One-Time Impact on Law Enforcement Services		<u>\$0</u>
Notes: (1) Annual Expenditures, estimated by Sergeant John Eaves, include 6 additional sworn officers (\$60,000 per officer) and 3.5 support staff (\$40,000 per staff). Also 4 additional equipped patrol cars, \$23,000 each, with an estimated life of 2 years (i.e. annual cost \$92,000/2) (2) Cost has not been determined at this time. Currently, the Police Department is planning a building expansion irrespective of project development. Sources: Administrative Sergeant John Eaves, Hercules Police Department; Marie Simons, Finance Director, City of Hercules; and Sedway & Associates. D:\EA\18193\POLICE.WK4		

The annual sidewalk maintenance cost is estimated to be \$600 per mile, assuming that future sidewalk maintenance costs are shared by developers and the City (Richardson, 1994). DKS Associates estimates 2.7 project street miles, resulting in an incremental sidewalk annual expenditure of \$1,600. All other public works costs, such as street sweeping, storm drains, and lights, are expected to be covered through Landscaping and Street Lighting District assessments. However, the City will need to take specific action to assess property owners for these other public works costs. Additionally, it is estimated that an additional full-time maintenance worker will be required to service the new development. As detailed in Table 14, the combined annual incremental impact on public works at project build-out is estimated at \$57,600.

Summary

At build-out, the 24 identified parcels are estimated to require incremental annual expenditures of \$1,606,600. The largest net cost increases will come from public safety, parks and recreation, and general government. Increased parks and recreation costs will be partially offset by increased fees.

TABLE 14
ANALYSIS OF PROJECTED IMPACT ON STREET AND TRAFFIC MAINTENANCE AT BUILD-OUT
PROPOSED PROJECT ALTERNATIVE
FISCAL 1994-95 DOLLARS

	Annual Impact
Street Maintenance Expenditure per Lane Mile (1)	\$2,000
Number of Project Lane Miles (2)	5.5
Project Impact on Street Maintenance	\$11,000
Sidewalk Maintenance Expenditure per Mile (3)	\$600
Number of Project Miles (2)	2.7
Project Impact on Sidewalk Maintenance	\$1,600
Additional Full Time Maintenance Worker (salary & benefits)	\$45,000
Total Impact of Project on Street and Sidewalk Maintenance (rounded) (4)	<u>\$57,600</u>
Notes: (1) Annual street maintenance expenditure estimated by Ron Richardson, Public Works Director. (2) Number of street miles and lane miles per Mark Spencer with DKS. Figures do not include CalTrans projects. (3) Per Ron Richardson, average sidewalk maintenance cost per mile. All other costs are expected to be covered by assessments to property owners (e.g., street sweeping, storm drains, and lights). (4)	
Sources: Ron Richardson, Public Works Director, City of Hercules; DKS Associates; and Sedway & Associates.	
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IV. ADDITIONAL PROJECT COSTS AND REVENUES

In addition to the budget for the City of Hercules, the budgets for other municipal service providers will also be affected by the build-out of the 24 identified parcels. Most notable among these other providers are the Rodeo-Hercules Fire Protection District and the West Contra Costa Unified School District. These two service districts are separate taxing entities in that, like the City, they receive their own share of the property taxes collected by the County. The shares, or tax allocation factors, vary by Tax Rate Area (TRA) within the County. For this analysis, S&A has utilized the tax allocation factors from TRAs 04002 and 04009. Property tax revenue is exclusive of revenue from the parcels located in the Redevelopment Area.

FIRE DISTRICT

The City of Hercules' fire and emergency medical services are provided by the Rodeo-Hercules Fire Protection District. The fire district is a dependent, non-enterprise special district. It is not part of County government nor any city government. To fund its operations, the fire district's primary revenue source comes from property taxes.

Revenues

Annual Revenues. The fire district's recurring revenues come from property taxes and assessment fees. The primary source of operating revenues is the fire district's tax allocation of 7.36 percent of the County's property tax revenue. As indicated in Table 15, the annual project-related property tax revenues allocated to the fire district are estimated at \$181,000 at build-out.

The fire district's assessment fee is \$52 per risk unit. Risk units are assigned by Contra Costa County by parcel land use (Salmi, 1994). Based on a schedule provided by the fire district, S&A estimated a total of 132 risk units for the 24 parcels. As detailed in Table 15, the fire district's assessment fee revenue is estimated at \$6,900 per year at project build-out. The assessment fee revenue will be considerably higher if parcels are subdivided, as the fee is on a per parcel basis. The fire district's combined recurring revenue is projected to be \$187,900 per year.

One-Time Revenues. The fire district also receives a one-time developer fee of \$0.166 per square foot of development. The development of the 24 parcels is projected to total 8,821,118 square feet. This figure includes 5,005,118 square feet of office/R&D, industrial, and commercial development, as well as 3,816,000 square feet of residential development. S&A assumed that the average residential unit will be 1,000 square feet. The average unit

TABLE 15
ANALYSIS OF IMPACT ON FIRE DISTRICT AT BUILD-OUT
PROPOSED PROJECT ALTERNATIVE
FISCAL 1994-95 DOLLARS

	Annual Impact	One-Time Impact
Impact on Revenues		
Annual Impact on Revenues		
<i>Annual Property Tax Revenue</i>		
Contra Costa County Property Tax (see Table 8)	\$2,458,600	
Fire District's Portion (1)	7.36%	
Annual Property Tax Allocated to Fire District (rounded)	\$181,000	
<i>Annual Assessment Fees</i>		
Assessment Fee Per "Risk Unit" (2)	\$52	
Total Number of Risk Units	132	
Total Assessment Fee (rounded)	\$6,900	
One Time Impact on Revenues		
<i>Developer Fee</i>		
Fee Per Square Foot Development		\$0.166
Total Project Square Feet (3)		8,821,118
Total Developer Fee		\$1,464,300
Impact on Expenditures (4)	\$0	\$0
Net Fiscal Impact	<u>\$187,900</u>	<u>\$1,464,300</u>

Notes:

- (1) This analysis assumes property tax allocation for Tax Rate Areas (TRA) 04002 and 04009. Properties in these TRAs include properties owned by Hercules Properties, Inc., Gelsar, Inc., and MRB Associates. City of Hercules is projected to receive 5.56 percent of the 1.0 percent property tax collected by the County. This represents property tax revenue at build out. Figures are rounded.
- (2) Contra Costa County has determined the risk unit allocation of various land uses. Sedway & Associates applied the appropriate risk unit to each of the 24 parcels. For mixed-use parcels the assigned risk unit was calculated based on a weighted average.
- (3) Includes 4,944,569 square feet office/R&D, industrial, and commercial development plus 3,816,000 square feet associated with 3,816 multifamily residential units. Assumes residential units are 50 percent apartment units (900 square feet) and 50 percent are condominium units (1,100 square feet).
- (4) According to Pedro Jimenez, no incremental costs will result from the development.

Sources:

Pedro Jimenez, Chief, and Dennis Salmi, Assistant Chief, Rodeo-Hercules Fire Protection District;
 Leslie Williams, Contra Costa County Auditor-Controller Office; and Sedway & Associates.

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size assumption is based on a review of new apartment and condominium developments in the area. Thus, the total one-time development fee is anticipated to total \$1,464,300.

Expenditures

The development of the 24 identified parcels is not expected to result in any annual or one-time expenditures for the fire district. However, if one of the developed uses presented a unique hazardous danger, the fire district would be required to purchase the necessary equipment. Based on the information available at this time, no additional expenditures are anticipated (Jimenez, 1994).

Summary

The projected net fiscal impact to the fire district is \$187,900 annually and \$1,464,300 one-time.

PUBLIC SCHOOL SERVICES

Public school services are provided by West Contra Costa Unified School District. The school district's tax allocation factor is 36.6 percent. The Redevelopment Agency does not have a pass-through agreement with the school district. Thus, tax revenues from parcels within the Redevelopment Area were excluded.

Annual Impact

Based on the 36.6 percent share of County property taxes, the West Contra Costa Unified School District is estimated to receive annual property tax revenues of \$899,800. In addition to property taxes, school districts receive funding from the State of California, the federal government, and other local sources. The West Contra Costa Unified School District's funding per average daily attendance is \$3,114 (Bruno, 1994).

The increase in average daily attendance is calculated based on the estimated increase in the number of students (1,260) multiplied by the average attendance rate (96 percent) multiplied by the funding per average daily attendance (\$3,114). Thus, the total incremental revenue is estimated at \$3,766,700. As detailed in Table 16, \$899,800 is estimated to come from incremental property taxes associated with the project, at build-out. The shortfall (\$3,766,700 less \$899,800) will come from state and federal resources. The estimated annual costs are estimated to be \$2,139,000 (Bruno, 1994). However, this annual expense figure is very preliminary and may be significantly higher, depending on the need to construct and support additional schools. Thus, the net annual impact at build-out is estimated at \$1,627,700.

TABLE 16
ANALYSIS OF PROJECTED IMPACT ON WEST CONTRA COSTA UNIFIED SCHOOL DISTRICT AT BUILD-OUT
PROPOSED PROJECT ALTERNATIVE
FISCAL 1994-95 DOLLARS

Annual Impact	
<i>Revenues</i>	
County of Contra Costa Property Tax Collections (see Table 8)	\$2,458,600
West Contra Costa County Unified School District Portion (1)	36.60%
Property Tax Allocated to West Contra Costa Unified School District (rounded)	\$899,800
Supplemental Revenue	\$2,866,900
Average Daily Attendance Revenue(2)	\$3,766,700
<i>Expenditures</i>	
Annual Impact on Expenditures (3)	\$2,139,000
Net Annual Impact	\$1,627,700
One Time Impact	
Number of Housing Units	3,816
Average Unit Size (Square Feet) (4)	1,000
Residential Square Footage	3,816,000
Total Non-Residential Square Footage (see Table 1)	5,005,118
<i>Revenues</i>	
School Impact Fees per Square Foot Residential Development (5)	\$1.72
Total School Impact Fees from Residential Development	\$6,563,500
School Impact Fees per Square Foot Non-Residential Development (5)	\$0.28
Total School Impact Fees from Non-Residential Development	\$1,401,400
Total One-Time Revenues (rounded)	\$7,964,900
<i>Expenditures</i>	
Number of Residential Units	3,816
Elementary Student Generation Rate (6)	0.18
Number of New Elementary Students	687
Projected Future Elementary School Capacity	0
Shortfall in Capacity	687
Projected Construction Cost per Elementary Student (5)	\$20,975
Projected Expenditure for Elementary Students	\$14,407,300
Junior High School Student Generation Rate (6)	0.05
Number of New Junior High School Students	191
Projected Future Junior High School Capacity	431
Shortfall Capacity	0
Projected Capital Cost per Junior High School Student (5)	\$27,352
Projected Expenditure for Junior High School Students	\$0
High School Student Generation Rate (6)	0.10
Number of High School Students	382
Projected Future High School Capacity	710
Shortfall Capacity	0
Projected Capital Cost per High School Student (5)	\$32,815
Projected Expenditure for High School Students	\$0
Total Projected One-Time Expenditure (rounded)	\$14,407,300
Net One-Time Impact	<u>(\$6,442,400)</u>
Notes:	
(1) Based on TRA 04002 and 04009 which includes properties owned by Hercules Properties, Inc., Gelsar, Inc., and MRB associates.	
(2) Per Laura Bruno the average daily attendance revenue is \$3,114 and the average absence rate is 4 percent. Calculation derived as follows: 1260 new students multiplied by attendance rate (96%), multiplied by funding rate (\$3,114).	
(3) Preliminary estimate per Laura Bruno. Includes incremental cost for teachers and supplies.	
(4) Assumes that 50 percent of the units are apartments (average size 900 square feet) and 50 percent are condominiums (average size 1,100 square feet). Unit size assumption based on a review of new apartments and condominiums in the Bay Area.	
(5) Per Cate Burkhart, West Contra Costa Unified School District, Facilities Planning.	
(6) District student generation rates per Cate Burkhart, West Contra Costa Unified School District. Calculated Hercules specific multifamily rate (.33) calculated based on district single-family and multifamily ratio (.21/.74) times Hercules single-family rate (1.17). Total student allocation rate is prorated across 13 grades.	
Sources:	
Cate Burkhart, Facilities Planning, West Contra Costa Unified School District; Laura Bruno, Fiscal Services, West Contra Costa Unified School District; and Sedway & Associates.	
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One-Time Impact

The school district receives one-time development fees. The current development fees are \$1.72 per residential square foot and \$0.28 per non-residential square foot. As indicated in Table 16, S&A estimated the average residential unit at 1,000 square feet. Thus, residential development fee revenue is estimated at \$6,563,500. The non-residential development fee, given 5,005,118 square feet of development, is estimated at \$1,401,400. Combined, the total estimated development fee revenue is \$7,965,000.

One-time expenditures are estimated based on estimated Hercules' multifamily student generation rates and capital cost of construction. For the West Contra Costa Unified School District the current generation rates are 0.74 for single-family homes and 0.21 for multifamily homes (Burkhart, 1994). The City of Hercules is somewhat unique because of the high percentage of single-family homes and larger household sizes. The school district has historically used a student generation rate of 1.17 for Hercules (Burkhart, 1994). S&A estimated a multifamily student generation rate for Hercules, taking into consideration the City's historically higher student generation rates. The calculated rate of 0.33 is determined by applying the ratio of the district's multifamily to single-family generation rate ($0.21/0.74$) to Hercules single-family rate (1.17).

Based upon the EIR's analysis of the impact on the West Contra Costa Unified School District, there will be sufficient capacity for middle school and high school age children. However, it is projected that at least one additional elementary school will be required to meet the needs of the projected 687 new elementary students.

The estimated school construction costs are \$20,975 per elementary student; \$27,352 per junior high student; and \$32,815 per high school student (Burkhart, 1994). As detailed in Table 16, the total projected one-time expenditure is \$14,407,300. The net one-time impact is estimated at (\$6,442,300).

V. ALTERNATIVE LAND USE PLANS

This section of the report qualitatively discusses the impact that the alternative land use plans would have on the City of Hercules, the Rodeo-Hercules Fire Protection District, and the West Contra Costa Unified School District. The three alternative land use plans considered are identified as: (1) commercial emphasis; (2) residential emphasis; and (3) reduced density emphasis. The projected development programs are summarized in Tables 2, 3 and 4, respectively. The quantitative figures included in this section of the report are presented to generally assess the fiscal impact variances under each alternative land use plan. This analysis does not take into consideration the appropriateness or financial feasibility of the alternative land use plans.

COMMERCIAL EMPHASIS

The commercial emphasis alternative land use plan differs from the proposed project land use plan in that it includes 740,308 additional square feet of commercial development and 1,950 fewer residential units (see Table 2). In general, the impact of more commercial and less residential development is a higher annual fiscal benefit and a lower one-time fiscal benefit to the City. Table 17 details the estimated revenues and expenditures to the City and other service providers.

Annual Impact on the City

The largest source of projected annual revenue is from retail sales tax. The methodology used to calculate retail sales tax is detailed in Section 3 and Table 9. The added commercial square footage is estimated to generate increased retail sales tax revenue of approximately \$1.5 million. Revenue from property taxes, utility taxes, motor vehicle in-lieu fees, franchise fees, and parks and recreation fees are projected to decline slightly. Combined, the commercial emphasis alternative land use plan is estimated to generate \$900,000 more annual net revenues than the proposed project land use plan.

Annual general governmental and parks and recreation expenses are projected to be slightly lower under the commercial emphasis alternative land use plan because the majority of these expenditures are estimated on a population basis. Public safety and public works costs are estimated to be approximately the same under both scenarios. Thus, the net annual fiscal impact to the City is projected to be \$1.2 million higher than under the proposed project alternative.

TABLE 17
PROJECTED NET FISCAL IMPACT ON THE CITY OF HERCULES AND OTHER SERVICE PROVIDERS AT BUILD-OUT
COMMERCIAL EMPHASIS ALTERNATIVE
FISCAL 1994-95 DOLLARS

Impact on City of Hercules	Annual Impact	One-Time Impact
<i>Impact On City of Hercules General Funds</i>		
Property Tax	\$172,800	
Retail Sales Tax	\$6,014,200	
Utility Tax	\$608,100	
Business License Fees	\$61,200	
Motor Vehicle License In-Lieu	\$195,500	
Homeowners' Exemption	\$2,900	
Franchise Fees	\$82,600	
Parks & Recreation Fees	\$215,000	
Gas Tax (net revenue)	\$0	
Property Transfer Tax		\$170,900
Community Development Tax		\$2,799,000
Traffic Mitigation Fees		\$14,823,300
Total Impact On Revenues	\$7,352,300	\$17,793,200
<i>Impact On City of Hercules Expenditures</i>		
Community Development	\$0	
General Government	\$387,700	
Parks & Recreation	\$277,900	
Public Safety	\$546,000	To Be Determined
Public Works	\$57,600	
Total Impact On Expenditures	\$1,269,200	\$0
<i>Net Fiscal Impact on the City of Hercules</i>	\$6,083,100	\$17,793,200
Impact on Other Service Providers	Annual Impact	One-Time Impact
Net Impact on School District	\$1,627,700	(\$2,226,900)
Net Impact on Fire District	\$235,600	\$1,263,500

Sources:

City of Hercules, 1994-95 Preliminary Budget; Environmental Sciences Associates, Inc.; and Sedway & Associates.

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One-Time Impact on the City

The primary one-time revenues to the City of Hercules are from property transfer tax, community development tax, and traffic mitigation fees. Under the commercial emphasis alternative land use plan, revenues from the property transfer tax and community development tax are projected to be lower than under the proposed project alternative. Most significantly, the community development tax is estimated to decline by \$2.9 million dollars. The traffic mitigation fee, which is charged on commercial development, is estimated to increase by \$1.2 million. One-time expenditures are estimated to remain constant. In total, the one-time net fiscal benefit is estimated to be \$1.7 million less under the commercial emphasis alternative.

Impact on Service Providers

The net annual and one-time impacts on the fire district are estimated to remain fairly constant between the commercial emphasis alternative and proposed project alternative. Variances are due to the lower estimated annual property tax revenue and lower one-time development fee. The development fee is lower because the total estimated square feet developed is 1.2 million less under the commercial emphasis alternative.

The net annual and one-time costs to the school district are lower because of the reduction in residential units. Under the proposed project alternative, the school will incur a significant one-time cost to provide services to the new school children. This negative impact is reduced by \$4.2 million under the commercial emphasis alternative land use plan.

RESIDENTIAL EMPHASIS

The residential emphasis alternative plan includes 378 more residential units and 110,419 fewer square feet of commercial development (see Table 3). In general, the residential emphasis alternative's fiscal impact is quite similar to the proposed project alternative. The residential emphasis alternative scenario results in slightly less net annual fiscal benefit and greater one-time fiscal benefit to the City. Table 18 details the estimated revenues and expenditures to the City of Hercules and other service providers for the residential emphasis alternative.

TABLE 18
PROJECTED NET FISCAL IMPACT ON THE CITY OF HERCULES AND OTHER SERVICE PROVIDERS AT BUILD-OUT
RESIDENTIAL EMPHASIS ALTERNATIVE
FISCAL 1994-95 DOLLARS

Impact on City of Hercules	Annual Impact	One-Time Impact
<i>Impact On City of Hercules General and Special Revenue Funds</i>		
Property Tax	\$132,800	
Retail Sales Tax	\$4,280,800	
Utility Tax	\$780,400	
Business License Fees	\$86,700	
Motor Vehicle License In-Lieu	\$439,400	
Homeowners' Exemption	\$6,400	
Franchise Fees	\$139,800	
Parks & Recreation Fees	\$483,300	
Gas Tax (net income)	\$0	
Property Transfer Tax		\$131,400
Community Development Tax		\$6,291,000
Traffic Mitigation Fees		\$12,628,273
Total Impact On Revenues	\$6,349,600	\$19,050,673
<i>Impact On City of Hercules Expenditures</i>		
Community Development	\$0	
General Government	\$444,100	
Parks & Recreation	\$624,400	
Public Safety	\$546,000	
Public Works	\$57,600	To Be Determined
Total Impact On Expenditures	\$1,672,100	\$0
<i>Net Fiscal Impact on the City of Hercules</i>	<i>\$4,677,500</i>	<i>\$19,050,673</i>
Impact on Other Service Providers		
Net Impact on School District	\$1,627,700	\$7,250,200
Net Impact on Fire District	\$182,700	\$1,509,700

Sources: City of Hercules, 1994-95 Recommended Base Budget; Environmental Sciences Associates, Inc.;
and Sedway & Associates.

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Annual Impact on the City

Revenue items that are projected to increase under the residential emphasis alternative land use plan are property taxes, business license fees, motor vehicle license fees, homeowners' exemption, and parks and recreation fees. In total, these revenues are projected to increase by \$122,000. Revenue from retail sales tax is estimated to decline by approximately \$223,000. The combined impact on revenues is a decline of \$101,000.

Annual City expenditures are projected to increase by approximately \$65,000 because most of the costs are estimated based on population projections. The net fiscal benefit under the residential emphasis alternative plan is approximately \$200,000 less than the proposed project alternative.

One-Time Impact on the City

In total, the one-time benefit to the City under the residential emphasis alternative is estimated to be approximately \$400,000 higher than under the proposed project alternative. The primary cause for the increased benefit is higher community development tax revenues resulting from more residential units.

Impact on Service Providers

The annual and net fiscal benefit to the fire district is estimated to remain fairly constant. School district costs will be higher for the residential emphasis alternative because of the increase in students. Thus, the annual fiscal benefit will decline and the one-time fiscal cost will increase.

REDUCED DENSITY

The reduced density alternative differs from the proposed project alternative in that it includes significantly less development across all property types. The assumed land uses are the same as under the proposed project alternative; however, projected densities are at the low end of the density range specified in the draft Land Use Element Update. Under the reduced density alternative, development is decreased by 1.2 million square feet of commercial space and 2,244 residential units (see Table 4). This equates to a 24 percent reduction of commercial space and a 59 percent reduction in residential units. The overall annual and net benefit to the City is lower under the reduced density alternative. The estimated revenues and expenditures are estimated in Table 19.

TABLE 19
PROJECTED NET FISCAL IMPACT ON THE CITY OF HERCULES
AND OTHER SERVICE PROVIDERS AT BUILD-OUT
REDUCED DENSITY ALTERNATIVE
FISCAL 1994-95 DOLLARS

Impact on City of Hercules	Annual Impact	One-Time Impact
<i>Impact On City of Hercules General Funds</i>		
Property Tax	\$93,000	
Retail Sales Tax	\$3,387,800	
Utility Tax	\$586,300	
Business License Fees	\$46,000	
Motor Vehicle License In-Lieu	\$164,700	
Homeowners' Exemption	\$2,400	
Franchise Fees	\$64,600	
Parks & Recreation Fees	\$181,100	
Gas Tax (net revenue)	\$0	
Property Transfer Tax		\$92,000
Community Development Tax		\$2,358,000
Traffic Mitigation Fees		\$9,760,100
Total Impact On Revenues	\$4,525,900	\$12,210,100
<i>Impact On City of Hercules Expenditures</i>		
Community Development	\$0	
General Government	\$380,500	
Parks & Recreation	\$234,000	
Public Safety	\$546,000	To Be Determined
Public Works	\$57,600	
Total Impact On Expenditures	\$1,218,100	\$0
<i>Net Fiscal Impact on the City of Hercules</i>	\$3,307,800	\$12,210,100
Impact on Other Service Providers	Annual Impact	One-Time Impact
Net Impact on School District	\$1,627,700	(\$2,172,000)
Net Impact on Fire District	\$130,000	\$888,900

Sources:

City of Hercules, 1994-95 Preliminary Budget; Environmental Sciences Associates, Inc.; and Sedway & Associates.

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Annual Impact on the City

Similar to the other scenarios, the largest source of ongoing revenue is projected from retail sales tax. The revenues are less under this scenario because of the decline in estimated retail development. Combined, annual revenues are estimated to be \$1.9 million less under the reduced density alternative. Annual expenditures are also expected to decline under this alternative. Expenditures for general government and parks and recreation are less under the reduced density plan because of the reduction in new residents and employees. The net fiscal impact on the City of Hercules is \$1.5 million less than under the proposed project alternative.

One-Time Impact on the City

The one-time net fiscal impact on the City of Hercules is projected to be \$6.6 million less than under the proposed project alternative. The main sources of one-time revenue are the community development tax and the traffic mitigation fee, which are calculated on a per residential unit and square feet basis, respectively. Therefore, the reduction in density results in lower one-time revenues.

Impact on Service Providers

The net impact on the school district and the fire district is projected to be less than under the proposed project alternative. Most significantly, the one-time impact on the school district is projected to decline from (\$6,400,000) to (\$2,200,000). The reduction in one-time cost to the school district is attributable to the lower capital costs required to accommodate fewer school age children. One-time revenues to the fire district are estimated to be \$600,000 less because the source of revenues, a developer fee, is based on the amount of square feet built.

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- McFann, Greg, Chief Building Inspector, City of Hercules, telephone conversation, July 1994.
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- Richardson, Ron, Public Works Director, City of Hercules, telephone conversation, June 1994.
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- Simons, Marie, Finance Director, City of Hercules, telephone conversation, June and December 1994.

ASSUMPTIONS AND GENERAL LIMITING CONDITIONS

Sedway & Associates (S&A) has made extensive efforts to confirm the accuracy and timeliness of the information contained in this study. Such information was compiled from a variety of sources, including interviews with government officials, review of City and County documents, and other third parties deemed to be reliable. Although S&A believes all information in this study is correct, it does not warrant the accuracy of such information and assumes no responsibility for inaccuracies in the information by third parties. We have no responsibility to update this report for events and circumstances occurring after the date of this report. Further, no guarantee is made as to the possible effect on development of present or future federal, state or local legislation, including any regarding environmental or ecological matters.

The accompanying projections and analyses are based on estimates and assumptions developed in connection with the study. In turn, these assumptions, and their relation to the projections, were developed using currently available economic data and other relevant information. It is the nature of forecasting, however, that some assumptions may not materialize, and unanticipated events and circumstances may occur. Therefore, actual results achieved during the projection period will likely vary from the projections, and some of the variations may be material to the conclusions of the analysis.

Contractual obligations do not include access to or ownership transfer of any electronic data processing files, programs or models completed directly for or as by-products of this research effort, unless explicitly so agreed as part of the contract.

APPENDIX F: DRAFT LAND USE ELEMENT

The Land Use Element has the broadest scope of the seven mandatory elements. It plays the central role of coordinating all land use issues into a comprehensive, integrated development guidelines, by goals, objectives, policies and actions, which apply to all land elements. For this reason, it is the most visible and often used Element of the General Plan. Although all General Plan Elements carry equal weight, the Land Use Element is often perceived as being the most representative of the "General Plan."

The Land Use Element designates the proposed general distribution, location, and extent of land uses for housing, business, industry, open space, education, public buildings and grounds, waste disposal facilities, and other categories of public and private land uses. The emphasis is on the desired or intended future development of the City.

1. INTRODUCTION AND PURPOSE

A. BACKGROUND

The development and use of land in a community can dramatically affect the quality of life in that community for residents and employees. The availability, type and cost of housing helps determine the number of people who live in the community, their relative age, and the relative proportion of school-age children. Access to commercial, retail and employment

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LAND USE ELEMENT

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The Land Use Element has the broadest scope of the seven mandatory elements. It plays the central role of correlating all land use issues into a set of coherent and consistent development guidelines. Its goals, objectives, policies and programs relate directly to all other Elements. For these reasons, it is the most visible and often used Element of the General Plan. Although all General Plan Elements carry equal weight, the Land Use Element is often perceived as being the most representative of the "General Plan."

The Land Use Element designates the proposed general distribution, location, and extent of land uses for housing, business, industry, open space, education, public buildings and grounds, waste disposal facilities, and other categories of public and private land uses. The emphasis is on the desired or intended future development of the City.

I. INTRODUCTION AND PURPOSE

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The development and use of land in a community can dramatically affect the quality of life in that community for residents and employees. The availability, type and cost of housing helps determine the number of people who live in the community, their relative age, and the relative proportion of school-age children. Access to commercial, retail and employment

areas can dictate whether residents spend substantial time commuting to work in other areas or driving to/from shopping areas in other communities. The arrangement of commercial and residential uses can affect whether residents or workers can walk, use bicycles, and use public transportation to commute or for shopping trips, or whether they must use private vehicles. Access to parks and recreation facilities can expand the opportunities for use of leisure time. The presence and protection of undeveloped open space can enhance a community's identity and can avoid subjecting residents and businesses to landslides and other hazards. In these ways, and many others, the development and use of private and public property set the "Stage" upon which residents, local workers and visitors live their lives.

B. PURPOSE

The Land Use Element provides long-term direction and guidance to development within the City, including policies, programs and actions for managing the development of private and public property in Hercules. The Preamble to this Element sets forth the goals of the General Plan in regards to development. It is the intent that these goals will result in a "full service community that maintains a desired quality of life, while providing for a wide range of residential, commercial shopping, employment and recreational opportunities.

The Land Use Diagram (see Figure IV.A.3 as included in the Draft EIR) illustrates the general proposed distribution of the land use categories described in this Land Use Element. The

Diagram is intended to serve as a general guide to future land uses. Zoning classifications, consistent with the land use categories, will be established for this purpose in the Zoning Ordinance and Zoning Map. The proposed transportation system and policies regarding transportation are addressed in the Circulation Element.

C. AUTHORITY

California law requires cities and counties to adopt Land Use Elements of their General Plans (ref. California Government Code Section 65300 et.seq.). Section 65302(a) states:

"A land use element which designates the proposed general distribution and general location and extent of the uses of the land for housing, business, industry, open space, including agriculture, natural resources, recreation, and enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal facilities, and other categories of public and private uses of land. The Land Use Element shall include disposal facilities, and other categories of public and private uses of land. The Land Use Element shall include a statement of the standards of population density and building intensity recommended for the various districts and other territory covered by the plan. The Land Use Element shall identify areas covered by the plan which are subject to flooding and shall be reviewed annually with respect to those areas. The Land Use Element shall designate, in a land use category that provides for timber production, those parcels of real property zoned for

timberland production pursuant to the California Timberland Productivity Act of 1982. Chapter 6.7 (commencing with Section 51100) of Part 1 of Division of 1 of Title 5."

The Land Use Element is divided into four main sections. They are as follows:

- Existing Land Use, Projections and Background
- Land Use Issues and Concerns
- Land Use Goals, Objectives and Policies
- Land Use Plan

While the general character of the City has been established by past land use decisions, there are many such decisions to be made in the future which must recognize and protect the existing character of the community, as well as provide a balance of new land uses to assure maintenance of the quality of life aspects sought by Hercules and to maintain economic viability.

EXISTING LAND USE AND PROJECTIONS

A. BACKGROUND

As described in the Preamble, Hercules began as a company town, and was incorporated in 1900 to allow the powder company to control the land around the plant facilities. In

1964, production of fertilizer replaced the production of dynamite and black powder. In 1974, the fertilizer operation ceased, and Hercules, Inc. began selling the plant property to developers.

In 1974, Hercules had approximately 150 residents. By 1993, the number of residents had grown to 18,618. This explosive growth created a modern suburban community that included four convenience shopping centers and two employment centers. However, development of the commercial and employment areas did not keep pace with the residential growth, and did not fulfill the vision of a balanced community. In order to rectify this situation, the City Council gave priority to commercial and employment development that could help maintain the quality of life in Hercules. In 1993, a citizens task force ("Community Panel") evaluated and recommended a new land use concept that responds to this emphasis. This concept is incorporated into this revised Land Use Element.

B. 1993 LAND USE

By 1993, most of the residential portion of Hercules had been developed, while much of the commercial and employment areas remained vacant. The following is a summary of the existing and projected development, as well as key issues and agencies that impact the community.

1. Residential

According to State Department of Finance projections, on January 1, 1995, Hercules had a population of 18,900 in 6,345 condominiums, apartments and houses. While the proportion of condominiums in Hercules has increased since 1980 as a number of new condominium developments were built, most residents live in single family homes. In addition, most City residents owned their residence.

2. Employment, Retail and Services

Business in Hercules provide relatively few jobs or shopping and service opportunities. Most residents must commute to work and drive to shopping areas. According to the Association of Bay Area Governments, in 1990 Hercules had about 2,430 jobs; major employers include Bio-Rad Laboratories, Richmond Unified School District, and Mechanics Bank. The amount of employment grew only slowly during the 1980's and did not keep pace with the residential growth. At the same time, Hercules had 9,431 employed residents¹. Even if Hercules residents held all these jobs, about 7,000 residents would have to commute outside the City to work. In actuality, probably almost all employed residents out-commute to work.

¹employed residents: persons living in Hercules who work outside the home.

Retail businesses in Hercules provide a limited range of shopping and service opportunities, which include food, drugs, video rentals, and other "convenience" goods. However, most of the residents must leave Hercules to shop for goods and services beyond these basic essentials.

3. Public and Semi Public

Schools: Hercules is served by two school districts: West Contra Costa Unified School District (WCCUSD) and John Swett Unified School District (JSUSD). The Foxboro area (east of I-80 and north of SR 4) is in the JSUSD, and WCCUSD serves the rest of the City. At present WCCUSD operates three elementary schools. Hannah Elementary School officially opened in January 1995. Historically, some WCCUSD students have attended elementary school in Pinole; with the opening of the new elementary school, all WCCUSD elementary students will be able to attend school in Hercules. All JSUSD Hercules elementary students attend Hillcrest Elementary School in Rodeo.

At present, WCCUSD Hercules students attend middle and high school in Pinole. WCCUSD will begin construction of a combined middle/high school in Hercules in the Spring of 1996. It is intended that all WCCUSD Hercules students attend the combined school. JSUSD Hercules students attend middle and high school in Crockett.

City: The City Administrative Offices are located in the Civic Center, on the west side of Sycamore Avenue, east of the Creekside Shopping Center. The Civic Center site also includes the Senior Center and a temporary office building that is leased to the Chamber of Commerce.

The City owns and operates a 375,000 gallon per day wastewater treatment plant that is located west of the intersection of San Pablo and Sycamore Avenues. Additional City treatment capacity of 2.0 million gallons per day is provided at the Pinole-Hercules Treatment Plant, which is located at the west end of Tennant Avenue in Pinole.

Utilities: Pacific Gas and Electric (PGE) maintains an electricity substation along Bayberry Avenue (east of the I-80 off-ramp) and owns a 44-acre site between I-80 and San Pablo Avenue, north of John Muir Parkway, that contains four oil storage tanks and a pump station. The Circulation Element describes the underground pipelines that traverse the City. All utility services to residences and businesses are provided in underground mains, cables and lines.

State Agencies: CalTrans operates a maintenance yard on Bayberry Avenue (east of the I-80 off-ramps and the PGE substation). The Bay Area Rapid Transit District owns a seven-acre site bounded by I-80, Sycamore Avenue, San Pablo Avenue and John Muir Parkway that is to be developed with a transit transfer center. The relationship between this transit center and the local and regional circulation network is discussed in the Circulation Element.

4. Agricultural and Natural Resource Lands

The incorporated area of Hercules include no land used for agricultural purposes or containing significant natural resources. The upland portion of the Franklin Canyon Golf Course property was used seasonally for grazing cattle in the past, but this use was discontinued before the property was annexed. Indian midden sites have been identified in some of the developed areas of the City. These sites generally have been left undisturbed, the site and the surrounding area has been designated as open space. In cases where preservation-in-place has not been possible, the archaeological resources in these sites have been recovered before the area has been developed.

Some of the properties in the Sphere of Influence are used seasonally for grazing cattle. One property is under an agricultural preservation contract (Williamson Act). Although the owner has filed a notice of non-renewal for the contract, Pursuant to State law, this contract will expire in 2001.

5. Areas Subject to Flooding

Refugio Creek traverses the City from southeast to northwest and drains much of the community; the southwest corner of the City drains to Pinole Creek, and, the Franklin Canyon Golf Course property and the Sphere of Influence properties are drained by Rodeo Creek. As each neighborhood and subdivision was developed, flood control improvements

were constructed to eliminate flood hazards. As a result, areas subject to flooding by the 100-year storm are limited to creek channels and adjoining open space corridors, with one exception. The portion of the Refugio Creek basin that is west of San Pablo Avenue has not been developed, and a substantial portion of that area is subject to flooding. The Safety Element describes and maps these areas and provides policies so that the areas shall not be developed until flood control improvements are made to eliminate flood hazards.

At the Franklin Canyon Golf Course property, limited portions of the golf course immediately adjacent to Rodeo Creek are subject to flooding, as are similar areas downstream in the Sphere of Influence. In the community of Rodeo (which is not in Hercules' Sphere of Influence), Rodeo Creek flows in a concrete lined flood-control channel.

C. PROJECTIONS

The Association of Bay Area Governments (ABAG) prepares population and employment projections for cities and counties in the nine-county Bay Area. ABAG research was used as a comparative reference for projections performed by the City of Hercules in formulating this Land Use Element; however, local growth considerations and potential development trends were key factors in determining the projections and land use recommendations contained herein. The figures below indicate an aggressive development effort by the City consistent with City policy as embodied in the Economic Development Element.

By 2010, Hercules' population is projected to increase to 32,719, and the number of jobs in Hercules would grow to 18,608 consistent with the proposed changes to the Land Use and Circulation Elements. In general, the City's population is expected to grow through 2010, approximately equaling the growth rate for the County and slightly above the rate for the Bay Area. However, development trends are ever-changing and it is important to stress the optimal economic development characteristics of Hercules at the juncture of Highway 4 and Interstate 80. Thus, City staff analysis anticipates sizeable population and employment growth as evidenced above.

In 2010, Hercules is expected to continue to have substantially more employed residents than local jobs and most residents will continue to commute to work.

LAND USE ISSUES AND CONCERNS

This Land Use Element is intended to respond to and address a number of community issues and concerns in order to achieve the General Plan goals. The issues and concerns are as follows:

- Development of the commercial and employment areas has lagged behind the residential growth, resulting in a community that has not achieved a balance between jobs and housing;

- Lack of retail and service opportunities require residents and local employees and businesses to shop outside the City;
- Most residents must drive out of the community to reach employment or recreation areas;
- Substantial regional traffic on I-80, SR 4 and San Pablo Avenue create the opportunity to develop local and regional commercial uses;
- Refugio Creek provides a major environmental amenity for both adjoining properties and the community;
- State law requires the City to allow development of new residential units and areas as part of meeting the regional need for additional affordable housing;
- The City's location in the Bay Area both provides a high quality living environment and close access to regional shopping and cultural attractions and accordingly, the City needs to help solve regional problems and issues;
- If not controlled, vehicular traffic and other off-site effects from employment and commercial areas could impact existing residential neighborhoods;
- The land use plan and the circulation system need to be closely coordinated. In particular, traffic from new development should not overwhelm the carrying-capacity of the circulation system.

As noted, important issues have been recognized in the community. First, the land use goal is to accomplish a "balanced mixture" of activities and uses. Diversity means that the City can accommodate change over time. Since Hercules is primarily residential now, achieving

balance means that an emphasis will be placed upon attracting commercial, office and industrial uses.

LAND USE GOALS, OBJECTIVES, AND POLICIES

GOALS

The goals of the Land Use Element are:

Preserve and enhance the community's quality of life with well balanced growth and development.

Enhance and create a community with a wide range of choices, services, and amenities.

The Land Use Element is guided by four major concepts, which were defined by the community panel. The concepts are as follows:

- 1) Extending the linear park along Refugio Creek westward from San Pablo Avenue to San Pablo Bay. The creek corridor in the eastern portion of the City provides a major amenity, and extending the corridor to the Bay would provide a similar

attraction in the western portion of the City. It would also establish the creek corridor as a major urban design element for the entire community.

- 2) The junction of two major state highways offers major opportunities for retail development. Land near the I-80 and SR-4 interchange and along SR-4 should be designated for general commercial use.
- 3) New business, and the resulting jobs and business opportunities, can most easily be accommodated at the vacant property between the commercial area noted in #2 above, and the existing employment areas.
- 4) A limited amount of new residential development should be allowed on vacant properties that adjoin existing neighborhoods and that are more closely associated with these neighborhoods than the employment or commercial areas. Buffers should be established between the residential and non-residential areas.

OBJECTIVES, POLICIES AND PROGRAMS

OBJECTIVE 1

Achieve a level of population and employment which preserves and enhances the desired character of the community.

Policy 1A

- Encourage and only allow development that is consistent with the Land Use Diagram (see Figure IV.A.3 as included in the Draft EIR), Land Use Categories or objectives, policies and programs of the Land Use Element.

OBJECTIVE 2

Develop a community that balances housing, jobs, and commercial opportunities.

Policy 2A

Commercial and industrial development shall be consistent with gross intensity ranges in the Land Use Diagram (see Figure IV.A.3 as included in the Draft EIR) and Land Use Categories. Higher intensity may be considered if such development is consistent with the City's goals and policies. However, each project with a proposed higher intensity would be subject to site-specific environmental analysis to determine incremental impacts.

Policy 2B

Develop non-residential Land Use Categories which reduce the need for residents to leave the community by providing a variety of shopping and service opportunities.

Program 2B.1

- Target selected retail, service and employment opportunities that will meet the needs of the residents and develop a marketing program to attract these targeted opportunities.

Policy 2C

Emphasize employment generating development, which is lagging behind residential development.

Program 2C.1

Implement the Economic Development Strategy and conduct an annual assessment of the effort.

Program 2C.2

Develop the necessary financial and non-financial tools to be used to locate commercial and employment generating development and to provide incentives where appropriate. When incentives are provided, the City and/or Redevelopment Agency may seek a financial return on such incentives (e.g. loans, equity position, etc.).

Program 2D

Develop a program that gives favorable consideration to new retail development that would generate substantial new sales, for businesses that would provide substantial employment, high growth technical businesses (particularly bio-tech, flex office and incubator uses), health care services, restaurants and innovative mixed use development proposals.

OBJECTIVE 3

Achieve a rate of growth that is consistent with the provision of public facilities and services, that balances jobs, commercial, and housing opportunities, and also protects the quality of life in the community.

Policy 3A

Develop transportation facilities to provide access to the region, particularly public transit systems (buses, ride sharing, rail transit, as well as potential over water transit).

Program 3A.1

Provide assistance and support a regional rail transit system and seek funding for a train station in Hercules.

Program 3A.2

Work with BART to develop both short-term and long-term transit facility uses on the BART site in Hercules.

Program 3A.3

Analyze the existing public facilities and services compared to those needed to be developed as provided for in this Element. Develop a plan to meet the public facility and service needs, including a financing plan.

Policy 3B

The Land Use Element and Circulation Element need to be closely coordinated to insure that traffic from new development will not overwhelm the carrying capacity of the circulation system.

Program 3B.1

The planning and development of commercial and industrial areas should evaluate and minimize the effects on existing residential areas.

Policy 3C

Reasonable traffic flow and direct access between neighborhoods should be provided or preserved, where feasible.

Policy 3D

Create a strong and successful focus or center for business and activities that would provide services, shopping opportunities which would attract employees, clients, and patrons from a regional area, while not disturbing existing residential and community oriented areas.

OBJECTIVE 4

Develop sufficient employment and commercial tax generating uses to maintain a positive City government fiscal condition.

Policy 4A

Encourage local and regional commercial uses that can benefit from substantial regional traffic on I-80, SR-4, and San Pablo Avenue.

Policy 4B

Encourage uses that bring additional revenues (retail sales, property tax) either directly or indirectly to the City.

Program 4B.1

Analyze the City's retail sales and property tax generation, as compared to Regional and State averages, and identify and target those sectors where the City is underserved.

OBJECTIVE 5

Develop and maintain a pattern of residential land uses which provide for a variety and balance of densities and opportunities for a mix of dwelling and residential type.

Policy 5A

Residential development shall be consistent with gross density ranges in the Land Use Categories and Land Use Diagram (see Figure IV.A.3 as included in the Draft EIR). Higher densities may be permitted that are consistent with State density bonus requirement subsequent to appropriate environmental review. Lower densities may be permitted only when specific findings are made by the Planning Commission. The findings are:

- The development would be compatible with the surrounding neighborhood and would not have a detrimental effect on existing or future multi-family development, or on existing or future commercial development.
- The reduced density will not prevent the City from achieving its goals for low and moderate income housing, as set forth in the Housing Element.

Policy 5B

State law requires the City to allow development of new residential areas and units as part of meeting the regional need for housing.

Program 5B.1

Review on a periodic basis the affordable housing needs identified in the Housing Element and encourage housing to meet those needs.

Program 5B.2

Encourage development of innovative types of housing, including co-housing, congregate care facilities, and other types of housing that may provide low cost alternatives to typical housing.

Policy 5C

Provide additional affordable and/or senior citizen housing.

Policy 5C.1

Develop an affordable housing strategy which includes an implementation plan and financial and non-financial incentives for the development of such housing.

OBJECTIVE 6

Provide residential neighborhoods with a variety of cost ranges disbursed throughout the City.

Policy 6A

Larger scale residential development should, within its land use designation and density range, and recognizing features such as topography and feasibility, include a mix of dwelling types.

Policy 6B

Multi-family residential land should be developed with a balance of open space, landscaping, recreational amenities and should be accessible to commercial and recreational areas and public transportation.

OBJECTIVE 7

Achieve a pattern of development that is consistent with the City's desired image.

Policy 7A

Establish a visual identity for the City that distinguishes it from the surrounding areas.

Program 7A.1

Provide landscaping along major regional streets and highways. This landscaping should soften the appearance of traffic and parking along these routes, while allowing view corridors to retail and other businesses.

OBJECTIVE 8

Preserve Hercules history while developing its future.

Policy 8 A

Preserve and enhance the historic district area.

Program 8A.1

Develop plans to preserve and rehabilitate key historic buildings but not the former plant equipment and manufacturing structures related to former industrial sites.

Program 8A.2

Prepare a detailed study of the Historic Town Center and adjoining area (including Hercules Point) in order to define the appropriate mix of public and private land uses, design guidelines, preservation of key buildings, vegetation (e.g. trees) and trails.

OBJECTIVE 9

The City shall consider economic feasibility as a factor in the development review process within the framework of the General Plan.

OBJECTIVE 10

Provide recreational and cultural amenities within the community that meet the needs of the residents and workers.

Policy 10A

Promote development of a regional commercial recreation center or complex along, or adjacent to, the major transportation routes (I-80, SR4, and San Pablo Avenue).

Policy 10B

Create places for residents and workers in the community to meet and socialize.

OBJECTIVE 11

Participate and cooperate in regional and sub-regional planning activities.

Policy 11A

Cooperate with appropriate jurisdictions and/or agencies in preparation of State Mandated Regional Plans (e.g. Congestion Management and Source Reduction and Recycling Element).

Policy 11B

Participate in regional and sub-regional planning and traffic issues to better address the potential regional impacts upon the community.

OBJECTIVE 12

Encourage mixed use development that provides for an integrated mixture of residential and employment generating uses within the same structure.

OBJECTIVE 13

Minimize the impacts from incompatible land uses on existing and planned development areas.

Policy 13A

Create a transition between residential neighborhoods and commercial/industrial areas, except where such mixed uses are desirable (e.g. live/work space and other designated areas). The transition should separate land uses that might be incompatible if located in close proximity. Land uses must minimize adverse impacts and those that would not negatively impact adjoining properties should be encouraged.

Program 13B

Design of flood control improvements along Refugio Creek should be done in a manner to function as a transition area between land uses.

OBJECTIVE 14

Protect and enhance significant environmental attributes and features.

Policy 14A

Develop trail systems, open space, and other amenities that benefit the quality of life in the community.

Program 14A.1

Establish a strong and continuous system of trail links between the hills in the southeastern end of Refugio Valley and San Pablo Bay.

Program 14A.2

Establish a trail linkage between Pinole and Rodeo as part of the regional bay access trail, without encroaching upon private property or bluffs within the Hercules industrial area.

Program 14A.3

Continue to improve and protect Refugio Creek as a major environmental amenity.

OBJECTIVE 15

Provide for public, semi-public and non-profit uses and activities throughout the community.

Policy 15A

Public, semi-public and non-profit uses may be allowed in commercial and industrial land use categories, if the type of use and level of activity is compatible with uses and activities allowed in that land use category. As an example, corporation yards and utility substations may be allowed where industrial uses are allowed.

Program 15A.1

Develop language in the Zoning Ordinance to permit public, semi-public and non-profit uses in commercial and industrial land use categories, subject to the requirements of the land use category within.

LAND USE PLAN

The Land Use Diagram (see Figure IV.A.3 as included in the Draft EIR) illustrates the location of the different land uses in Hercules. The Land Use Diagram is based upon the goals of the General Plan, the City's Economic Development Strategy, and the community's vision for a balanced community.

The Land Use Diagram (see Figure IV.A.3 as included in the Draft EIR) identifies specific Land Use Categories. The definition of these categories and the allowed intensity and/or density of such land uses must be defined. The intensity, bulk, and scale of commercial development will be measured in terms of the allowable Floor Area Ratio (FAR). FAR is the ratio of allowable building floor area to size of the lot. Specifically, the gross floor area of a building divided by the lot area produces the FAR. Thus, a FAR of 0.3 for a 100,000 square foot lot could allow a building whose total floor area is 30,000 square feet.

It is important to note that when used alone, FAR gives a developer great flexibility in deciding whether to build a low building that covers more of a lot area or a taller building that covers a smaller portion of the lot. FAR is used in combination with other intensity

regulations, setbacks, open space, parking and building requirements, which are part of the zoning ordinance, and guide the final intensity of development.

Residential development is typically measured by density. The density is the number of residential units per acre. A ten acre site, which allows 8 units per acre, could result in 80 residential units (not taking into consideration other issues/constraints). The design of such development, such as whether the 80 units are clustered or spread out, is governed by height restriction, use (single family versus multi-family) and building regulations. (The updated residential land use categories assume a population density derived by multiplying 2.89 persons per household times the units per acre).

The land use categories and designations are detailed below. These designations have been set forth based upon a Master Environmental Assessment, existing development within the community, and the general development constraints within Hercules. The existence of one or more site specific development constraints could limit the use of a property or limit the development to less than the intensity or density standards set forth. Such constraints could include, but are not limited to the following: geotechnical conditions, topography, grading impacts, significant environmental issues, archeological sites, faults, drainage and other factors.

Where development constraints are found to exist during the detailed site planning process or other detailed levels of the development approval process, the General Plan assumes that

the density, intensity and extent of development may be reduced, based upon the goals, objectives, policies and programs of this Element. All intensity, density and population measures are calculated on gross acreage, prior to public streets, public easements, and other public dedications from the site acreage.

The following are the Land Use Categories, including the density or intensity of development, (and population generated by residential uses) for land uses shown on the Land Use Diagram (see Figure IV.A.3 as included in the Draft EIR).

Commercial and Industrial Land Use Designation

All of the Land Use Categories below use FAR (Floor Area Ratio) ranges, as well as a typically FAR. The typical FAR shall be the maximum allowed unless a development meets a specific goal, policy, objective or program of this Element. In such a case, a development may build to the higher end of the range. A development at a FAR higher than the typical will require additional analysis of its impacts (i.e. traffic, etc.) before entitlement action is determined and considered by the City.

Historic Town Center: (HTC) - The former administrative center, and some residences of the Hercules Powder Company may be an important historical asset of Hercules. The Historic Town Center designation is to allow the reuse of existing structures, where appropriate, and the addition of new buildings, while maintaining the architectural character of the area and

incorporating into the design the visual and physical access to the adjoining Bay Shoreline. View corridors and vista points will be established to protect and promote the views to the Bay. Uses within this land use designation shall include professional, administrative, and personal service offices (e.g. real estate, travel agent, etc.), as well as retail businesses. Retail and other commercial uses shall include business support service, restaurants and coffee shops, specialty shops and other businesses that support the professional and administrative offices, as well as uses that provide goods and services to visitors of the adjoining waterfront area. The predominance of these uses shall be located in close proximity to Railroad Avenue which is intended to be the "Main Street" of this area.

Areas separated from Railroad Avenue by existing or planned buildings shall be developed with either uses described above or with multi-family dwellings. This residential development will be allowed so long as the existing or planned non-residential uses would be compatible with the residential living environment.

The design and character of uses and buildings in this land use category is critical. The Historic Clubhouse is to be retained as a public community center. Existing buildings should be retained, where feasible, and may be expanded as long as the existing character is maintained.

The FAR for the non-residential category shall range from 0.15 to 0.40, with a typical FAR of 0.20 for the land use designation area. The density for residential shall be 17 units per

acre, with no more than 40 units to be developed in total (about 50 persons per acre; up to approximately 115 persons).

A specific plan shall be developed which will refine the intensity of commercial development and density of residential development, as well as location of such development and development guidelines.

Waterfront Commercial: (WC) - This land use category encompasses a portion of the Hercules Point that may allow private development. Hercules Point is approximately 15 acres. State and Federal agencies will likely require much of this area to be set aside for public access or to preserve wetlands adjacent to San Pablo Bay. However, a portion of this area may be developed. The commercial uses allowed shall provide goods and services for visitors to the public access areas. Typical uses would include restaurants, bait-and-tackle shops, and other visitor-oriented uses. Other uses may include:

- Recreational boat yard, maintenance and launching facilities
- Water oriented recreational instruction facilities
- Administrative offices, and other appurtenant uses
- Food, beverage, sundries, and recreational equipment sales
- Public transportation facility (ferry and charter boat service)
- Fishing Pier

The open character and the views of the Bay are a very important asset of this portion of the community, and the design of any structures must preserve and enhance the enjoyment of the meeting of land and water. The amount of development shall be limited. Substantial public access to the shoreline shall be provided. The FAR for this category shall range from 0.15 to 0.30, with a typical FAR of 0.20.

General Commercial: (GC) - This land use category is a non-specialized commercial designation that is intended to permit a wide variety of commercial uses. Businesses locating within this district will attract clientele from both Hercules and the adjacent communities, as well as those using I-80 and Highway 4. Uses allowed within this designation include retail, wholesale (open to the public), offices (business, professional and service), and other business serving the clientele described above. Uses in this designation may also include automobile service stations, restaurants, and automobile repair services, provided that the location and design of these uses effectively mitigate any potential off-site impacts.

The character of buildings within this land use category will typically be suburban in nature, one to two stories in height. More intense development may be allowed, provided that they conform to the overall character of the development and do not adversely impact the surrounding development. The FAR for this category shall range from 0.20 to 1.00. A typical FAR for this category is 0.03.

Community Commercial: (CC) - This land use category is intended to accommodate commercial development, including retail, office, and service uses that would serve residents and employees within the City. Generally, the location of these properties and the resulting lack of direct access and visibility from regional routes, effectively excludes businesses that require patronage from a regional market area. The FAR in this category shall range from 0.20 to 1.00, with a typical FAR of 0.25.

Recreational Commercial: (RC) - This land use category is intended to allow properties to be developed and used for recreational activities that are conducted as a business. Examples of such uses include a golf course, driving range, batting cages, athletic clubs and amusement centers. Development of these properties may also include sporting retail uses, such as sporting good stores, restaurants, cafes, bars, that contribute to creating a full-service commercial recreational facility. Parcel sizes shall vary from less than one acre (batting cages) to more than 100 acres (golf course). Building intensity shall also vary widely, according to the need for interior space as part of the activity. The FAR in this category shall range from 0.20 to 0.40, with a typical FAR of 0.30.

Commercial/Public: (CP) - This land use category allows transit related uses. Over time, property within this land use designation has the potential to combine transit uses with commercial development, consistent with the "General Commercial" designation, described above. The FAR for this land use category shall not exceed the allowed in "General Commercial."

Planned Office/R&D: (PO/RD) - This land use category is intended to provide areas of adequate size and access to support development of a wide variety of employment-oriented business and enterprise complexes. Development of properties in these areas shall be governed by specific area plans or master plans. Subdivisions or other entitlements shall not be approved unless and until a master plan for the property has been approved. The master plan shall include provisions for sewer capacity and other infrastructure, access to public streets, adequate parking, architectural guidelines or controls, and landscaping. The predominate uses in these areas shall include research and development uses, administrative offices, and manufacturing. Offices and retail service establishments serving nearby businesses and their employees shall also be allowed in this designation. Warehouse, distribution, or wholesale uses may be appropriate in these areas, if they serve or are essential to businesses in Hercules. The FAR for this category shall range from 0.25 to 1.00, with a typical FAR of 0.30.

Planned Commercial - Industrial: (PC-I) - Properties with this land use category are intended to accommodate commercial or industrial uses. They are located along I-80 and SR-4 and are visible from these routes, but have limited access. The visibility from the freeways is critical and must be preserved for these properties to be developed as commercial uses. Allowable commercial uses shall include retail, administrative office, service office, and similar uses. Allowable industrial uses shall include research and development, manufacturing, and business industrial services. Warehouse, distribution, or wholesale uses may be allowed in this area, if they directly serve or are essential to businesses in Hercules.

Development of properties with this designation shall be governed by development master plans, and subdivisions or other entitlements shall not be approved unless and until a master plan for the property has been approved. The master plan shall include provisions for sewer capacity and other infrastructure, access to public streets, adequate parking, architectural guidelines or controls, and landscaping. The FAR for this category shall range from 0.25 to 0.50, with a typical FAR of 0.30.

Planned Commercial-Residential: (PC-R) - This land use category is designed to provide the potential to accommodate both residential and commercial uses in a well-planned, mixed-use development. Commercial structures and uses shall be developed according to a master plan and shall be arranged as a unified development, which may resemble a shopping center, a shopping mall, or a traditional downtown shopping street ("Main Street"). Appropriate commercial uses shall include retail businesses, professional service offices, and other customer-oriented businesses.

The residential density in this category may range from 15 to 30 units per acre (approximately 45 to 85 persons per acre); structures within this land use designation shall have a maximum height of three stories. The FAR for non-residential use within this category shall range from 0.20 to 0.40 with a typical FAR of 0.30.

Development of these properties shall be carefully planned to insure that the benefits of mixed use development are fully realized, and the potential negative impacts of one use or

another are minimized. Subdivision or partial development of any properties with this category shall not be approved until a master plan for full development of the property has been reviewed and approved.

Industrial-Residential: (I-R) - This category is intended to be developed with both work-space and residential space in the same structure. The work-space will provide lower-cost, leasable space for start-up companies, craft workshops, or other businesses that require less support services or amenities than R&D or office uses. The FAR for the work-space portion of structures shall not exceed 0.50. The residential space will provide living area for persons employed in the work-space, and will generally be located above the work-space (e.g. lofts). The residential density shall not exceed 25 units/acre (approximately 75 persons per acre). Structures in these areas shall not exceed 40 feet in height. Parking requirements for proposed projects shall take into account the different peak-parking demand periods of residential and employment activity.

Industrial: (I) - This category is intended to accommodate heavy industrial uses, refineries, and storage facilities. The FAR range shall be from 0.3 to 0.5, with a typical FAR of 0.40.

Residential Land Use Designations:

These categories reserve property for single family (estate), single family and multi-family residential uses and structures. They may also be developed with uses and structures that

support residential uses (e.g. churches, schools, day care homes and centers) and secondary units (pursuant to State law), provided that such will not cause a substantial adverse impact on nearby residences. Potential adverse impacts could include, but need not be limited to, traffic congestion, increased noise, (ambient or episodic) or expected full use of available on-street parking. Residential development on individual properties may be clustered on portions of the property so as to create a mixture of densities or housing types on the property. These "sub-area" densities may exceed the maximum density or may be less than the minimum density stated in these definitions, provided that the overall density is within the range stated in these designations.

Single Family - Estate: (SFE) - This land use category is intended to provide sites for "estate" homes on larger lots, and shall be developed with custom-built and individually-designed homes. Secondary units, and uses that support residential uses may be allowed in this area, provided that the adjoining neighborhood shall not be substantially impacted by traffic, noise, or other off-site effects. Conforming zoning districts: RE-1 and RE-1/2.

- Allowable Density: 1-2 units/acre (resulting in an approximate population of 3 to 6 persons per acre)
- Maximum Building Height: 35 feet
- Minimum Parcel Size: 0.5 acre

Single Family - Low Density: (SFL) - This land use category is intended to provide areas for suburban single-family subdivisions. These lots will generally be developed as part of multi-

lot "production" subdivisions, where a limited number of models (with two or three different exterior designs) are built on individual lots in a random pattern. Secondary units and uses that support residential uses may be allowed in this area, provided that the adjoining neighborhood shall not be substantially impacted by traffic, noise, or other off-site effects.

Conforming zoning district: R-1.

- Allowable Density: 2-7 units/acre (resulting in an approximate population of 6 to 20 persons per acre)
- Maximum Building Height: 35 feet
- Minimum Parcel Size: 6,000 sq. ft., unless a smaller lot size is allowed by an approved planned unit development.

Single-Family - Medium Density: (SFM) - This land use category is intended to provide areas of single family homes on lots that are smaller than a "typical" suburban lot. They may be developed with either single family residences or duets. The size of the lots for each single family residence may range between 4,000 sq. ft. and 7,000 sq. ft. Uses that support residential uses may be allowed in this area, provided that the adjoining neighborhood shall not be substantially impacted by traffic, noise, or other off-site effects. Conforming zoning districts: R-1 and R-2.

- Allowable Density: 7-12 units/acre (resulting in an approximate population of 20 to 35 persons per acre)
- Maximum Building Height: 35 feet
- Minimum Parcel Size: 4,000 sq. ft.

Multi-Family - Low Density: (ML) - This land use category is intended to provide sites for low-density multi-family housing. They may be developed with townhouses, condominiums or apartments. The size of each development shall be sufficient to allow for good design and incorporation of amenities. Uses that support residential uses may be allowed in this area, provided that the adjoining neighborhood shall not be substantially impacted by traffic, noise, or other off-site effects. Conforming zoning districts: R-2.

- Allowable Density: 7-12 units/acre (resulting in an approximate population of 20 to 35 persons per acre)
- Maximum Building Height: 45 feet
- Minimum Parcel Size: 3 acres

Multi-Family - Medium Density: (MM) - This land use category is intended to provide areas for multi-family residences (primarily condominiums, apartments, and townhouses). The size of each development shall be sufficient to allow for good design and incorporation of amenities. Uses that support residential uses may be allowed in this area, provided that the adjoining neighborhood shall not be substantially impacted by traffic, noise or other off-site effects. The higher density in these areas is expected to enable the development of additional affordable housing. Conforming zoning districts: R-3 and R-4.

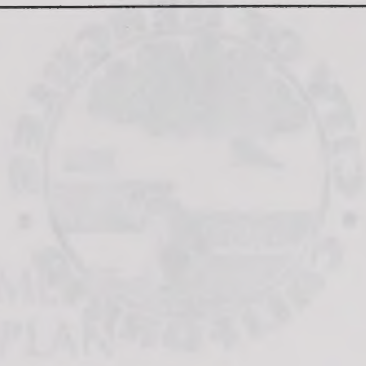
- Allowable Density: 12-30 units/acre (resulting in an approximate population of 35 to 85 persons per acre)
- Maximum Building Height: 60 feet
- Minimum Parcel Size: 5 acres

Multi-Family - High Density: (MH) - this land use category is intended to provide higher density housing, typically near public transit centers, shopping centers, or other "high activity" areas. The size of each development shall be sufficient to allow for good design and incorporation of amenities. Uses that support residential uses may be allowed in this area, provided that the adjoining neighborhood shall not be substantially impacted by traffic, noise, or other off-site effects. Conforming zoning districts: R-4 and (new) R-5.

- Allowable Density: 30-55 units/acre (resulting in an approximate population of 85 to 160 persons per acre)
- Maximum Building Height: 90 feet
- Minimum Parcel Size: 15 acres

APPENDIX G: DRAFT CIRCULATION ELEMENT

GENERAL PLAN
CIRCULATION
ELEMENT
OF THE GENERAL PLAN



DRAFT

Prepared for
City of Hercules

Prepared by
DWS Associates

November 1994



GENERAL PLAN CIRCULATION ELEMENT

DRAFT

prepared for
City of Hercules

by
DKS Associates

November 1994

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III. THE CIRCULATION/SCENIC HIGHWAY ELEMENT

A. AUTHORITY

1. Circulation

Government Code Section 65302 (b) requires a Circulation Element in all City and County General Plans, as follows:

"A circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the Land Use Element of the Plan."

B. RESEARCH AND ANALYSIS

1. Introduction

The Circulation and Scenic Highway Element is concerned with: 1) the movement of people and commodities (including energy) through the City; and, 2) local planning for scenic highways in the City.

The Land Use Element and the Circulation Element of the General Plan must work together so that the land use impacts and needs and the circulations/transportation system capability are coordinated. Projections of the traffic which will be generated by future development are the basis for the planned circulation system improvements in the Circulation Element.

This section ~~will summarize and analyze~~ summarizes background data relating to:

- a. Traffic circulation
- b. Scenic routes
- c. Public transit
- d. Riding and hiking trails
- e. Transmission lines and fuel lines
- f. Other transportation facilities
- g. Traffic study areas
- h. Traffic mitigation project

2. Existing Traffic Circulation

a. Area-wide Circulation

The City is served by two major freeways, Interstate Route 80 and State Highway 4. I-80 provides access to the San Francisco Bay Area, Sacramento and to the western states. Route 4 connects I-80 with the Sacramento delta and central Contra Costa County. See Figure III.1. See Figures 10 and 11.

I-80 is presently six lanes and the Department of Transportation is considering an expansion to an eight-lane facility with possibly a future expansion of Bay Area Rapid Transit (BART) system paralleling I-80 in the Hercules area. Route 4 is partly a freeway and partly a two-lane highway between I-80 and Martinez, and is planned for expansion to a six-lane freeway. Several existing ramp connections to these two freeways serve the City via Willow Avenue, San Pablo Avenue, and Bayberry. San Pablo Avenue provides a connection to communities north and south of Hercules and serves as a by-pass for I-80 when freeway traffic is congested.

b. Local Circulation

In September, 1994, the *General Plan Circulation Element - Transportation Technical Report* was prepared by DKS Associates. This study measured the existing traffic conditions throughout the City and projected traffic conditions which can be expected by the year 2010.

CITY WIDE TRAFFIC STUDY

~~In March, 1987, a "City wide Traffic Study" was prepared by JHK and Associates, consulting traffic engineers. This study measured the existing traffic conditions throughout the City and projected traffic conditions which can be expected by the year 2,000 or thereafter.~~

3. Future Land Use Assumptions

The focus of the study is the peak hour condition at full "Build-out" (i.e. development) of land both within the City and its sphere of influence to the east along Route 4. Travel demand on the transportation network was estimated using the West County Travel Demand Model. For this study, the year 2010 land use database was refined to reflect buildout of the Hercules General Plan according to the Community Panel Recommended Land Use

Concept (see Table III.1 and Figure III.2). Details of the revised household and employment projections are provided in Table A-2 of the separately bound *Transportation Technical Report Appendices* document. Additional information is also provided in the land use element of the General Plan.

The "City Wide Traffic Study" breaks the City into traffic study zones. These traffic zones are shown in Figures 9 and 9A. The projections of traffic to be generated at "Build-out" are based on land use assumptions as summarized in Table 7A.

Table 7B is a detailed breakdown of the land uses in each traffic zone. This includes both existing (1986) development and the future development that is expected to occur by the year 2000 or thereafter. The data in Tables 7A and 7B are taken from the land use designation of the present (August, 1988) General Plan and the Draft Hercules Properties/Gelsar Specific Plan (April 1988). Some of the data from the General Plan has been modified to reflect actual approvals.

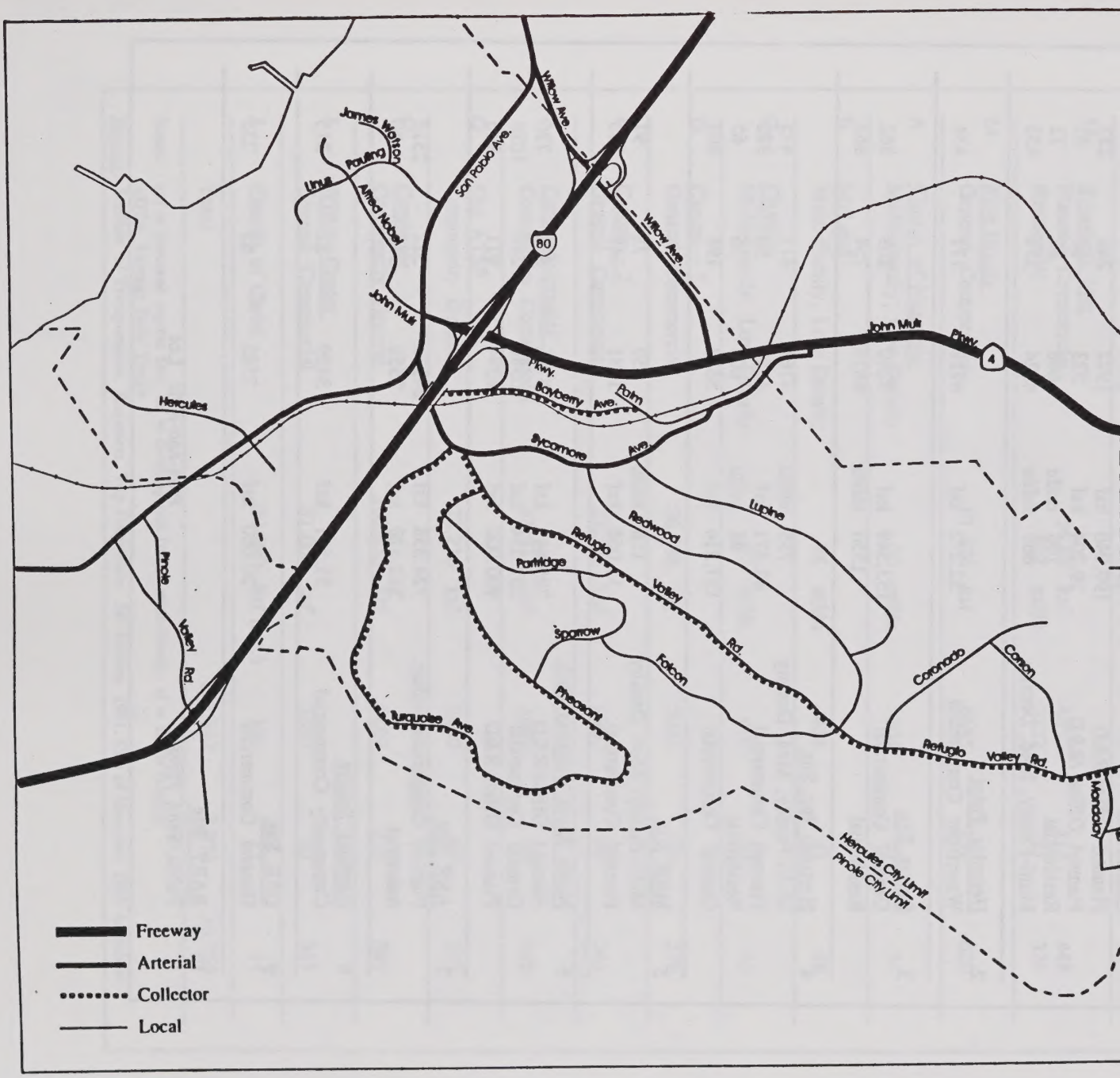
TABLE 7A LAND USE ASSUMPTIONS

		Additional				
		Sphere Of			Total at	
Land Use Group	Measure	Existing 1986	Influence	City Limit	Sub Total	Buildout
Residential						
Hotel						
Retail Commercial						
Office						
Industrial Park						
Lt. Industrial						
Heavy Industrial						
Public Offices						
Schools						

In the 1987 Study, trip generation rates from the third edition of *Trip Generation* published by the Institute of Transportation Engineers were used. In 1988, the fourth edition of this book was published with revised trip generation rates. JHK Associates reran the model using the revised trip generation rates, and re-analyzed the most heavily traveled intersections in the City. While the projected volume/capacity ratios changed slightly, JHK confirmed that the improvements identified in the 1987 Study will be needed to accommodate full build-out traffic at Level of Service D.

...in each traffic zone. This
 the future development that is
 The data in Tables 7 and
 of the present August, 1989
 the Central Specific Plan April
 has been modified to reflect

...third edition of the
 revision Engineers were
 was published with revised
 need using the revised trip
 very traveled intersections in
 either changed slightly, the
 the 1987 study will be
 level of Service D.



DKS Associates

Table III.1
Estimated Trip Generation
Community Panel Recommended Land Use Concept

Parcel	Land Use	Size	Units	ADT	AM Peak Hour Total	PM Peak Hour Total
1	<u>HPI Site</u>					
	Historic Town Center	85.000	ksf	518	47	60
	Historic Town Center - Res.	25	mfd	149	16	17
	Planned Office/R&D	459.558	ksf	3737	509	469
	Commercial	82.764	ksf	6279	145	582
	Planned Office/R&D	199.940	ksf	1922	248	237
	Planned Office /R&D	39.204	ksf	523	60	62
	Residential	108	mfd	668	62	72
	Multi-Family, Med. Density	669	mfd	4324	374	433
2	<u>Hercules Point</u>					
	Waterfront Commercial	52.272	ksf	4712	111	434
3	<u>Gelsar Site</u>					
	General Commercial	153.549	ksf	9240	209	862
	Residential	1350	mfd	8874	754	865
4	<u>Hercules Inc. Site</u>					
	Multi-Family, Med. Density	735	mfd	4761	411	475
	Planned Commercial	42.471	ksf	4138	98	380
	Residential	98	mfd	605	56	65
	General Commercial	137.214	ksf	8612	196	803
5	<u>MRB Site</u>					
	Multi-Family, Med. Density	138	mfd	859	78	91
	Planned Commercial	13.068	ksf	1981	49	180
6	<u>North Shore Business Park</u>					
	Planned Office/R&D	795.841	ksf	5796	819	736
	General Commercial	202.554	ksf	10986	246	1029
	Planned Office/R&D	900.000	ksf	6394	911	815
7	<u>ANR Site</u>					
	Planned Commercial/Indust.	724.838	ksf	24373	522	2318
	Industrial	362.420	ksf	2559	315	60
8	<u>Hercules Square</u>					
	Community Commercial	31.581	ksf	3439	82	315
9	<u>ORB Site</u>					
	General Commercial	20.000	ksf	2585	63	235
10	<u>BART Site</u>					
	Public/Semi Private			Park-and-Ride Lot		

Table III.1 (Continued)
Estimated Trip Generation
Community Panel Recommended Land Use Concept

Parcel	Land Use	Size	Units	ADT	AM Peak Hour Total	PM Peak Hour Total
11	<u>I-80 Loop Site</u> General Commercial	82.328	ksf	6258	145	580
12	<u>TABCO Site</u> General Commercial	116.305	ksf	7767	178	722
13	<u>Sycamore Site</u> Planned Commercial Residential	54.88 502	ksf mfdu	4857 3222	114 281	448 326
14	<u>Five Giants</u> General Commercial	91.476	ksf	6685	154	620
A	<u>Church of Nazarene</u> Multi-Family, Low Density	50	mfdu	304	29	34
B	<u>McLeod</u> Multi-Family, Low Density	74	mfdu	454	43	49
C	<u>Citation</u> Multi-Family, Low Density	67	mfdu	410	39	45
D	<u>Carone - 1</u> General Commercial	26.136	ksf	3055	74	279
E	<u>Carone - 2</u> General Commercial	23.522	ksf	2860	69	261
F	<u>Carone-Sycamore</u> Community Commercial	33.977	ksf	3600	86	330
G	<u>Old ATSF</u> Community General	22.216	ksf	2860	69	261
H	<u>Creekside</u> Community General	160.455	ksf	9497	215	887
I	<u>Willow Center</u> General Commercial	31.000	ksf	3399	82	311
J	Church of Christ	20.000	ksf (est.)	186	15	14
Total				173,347	7,972	16,753

Notes: ksf = thousand square feet; du = dwelling unit (mf = multi-family; sf = single family);
ADT = Average Daily Traffic

Sources: Institute of Transportation Engineers, Trip Generation, 5th Edition, 1991; City of Hercules; DKS Associates

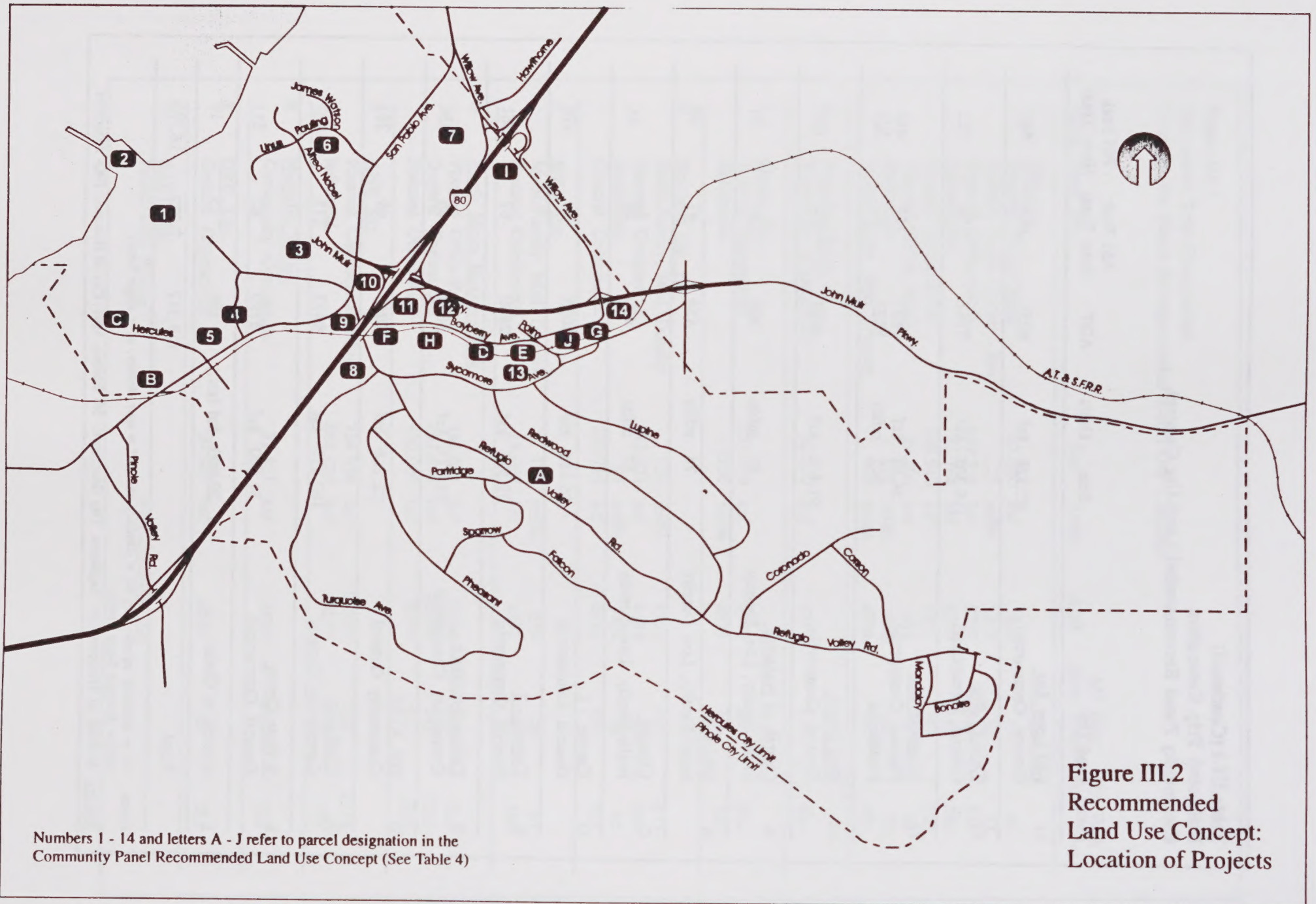


Figure III.2
Recommended
Land Use Concept:
Location of Projects

4.3- Future Transportation Improvements Needs

Identifying the transportation improvements which must be constructed in order to achieve the City's General Plan Policy of maintaining an acceptable Level of Service ~~Level of Service D~~ for peak hour traffic operating conditions ~~is~~ was a three-step process (see Section C.2 for definitions and policies relating to traffic levels of service for different roadway classifications).

First, the quantified land uses ~~are~~ were combined with the appropriate trip generation rates in the traffic model to determine the number of peak hour trips which would be generated on roadways and at specific intersections at buildout of the Community Panel Recommended Land Use Concept and with all committed transportation improvements in and around Hercules. Secondly, ~~the traffic model is then used to determine the Level of Service of traffic operation at intersections in the City were developed to full "Build-out" estimated without any improvements to the circulation/transportation system.~~ Third, the model ~~is~~ was used to identify which specific transportation improvements need to be constructed in order to achieve a Level of Service ~~D or better~~ an acceptable Level of Service in the City.

There are several transportation improvements included in the City's *Capital Improvement Program (CIP)* and the *Highway 4 West and San Pablo Avenue Circulation Improvement Plan*. Table III.2 lists each project that has committed funding or is reasonably assured of being completed (see Figure III.3).

Projected levels of service for major intersections in 2010 are shown in Table III.3 (see Figure III.4 for locations of intersections). Two intersections would operate below an acceptable level during both the weekday A.M. and P.M. peak hours: San Pablo Avenue/Sycamore Avenue and San Pablo Avenue/John Muir Parkway. Both of these intersections are projected to operate at LOS F in the future. Because these two intersections are adjacent to each other, they share a common congested segment of San Pablo Avenue. This segment of San Pablo Avenue, between SR 4 and Sycamore Avenue and further south to the city limit is the only deficiency identified for Year 2010 conditions.

San Pablo Avenue is designated as a regional route in the West Contra County Action Plan for Routes Of Regional Significance. As such, it is not subject to the same level of service standards as other "basic routes." Rather, it is subject to a traffic service objective, which is level of service E. The congestion on this section of San Pablo Avenue is due, in large measure, to diversion of traffic from I-80. Analysis of the travel demand modeling indicates that about one-third of the morning peak hour traffic on this section of San Pablo Avenue would use I-80 instead if there was adequate capacity.

Table III.2
Committed Roadway Network
Year 2010

Project	Limits	Description
Willow Avenue Improvements Phase II	Under I-80 Overpass	Widen to 4 lanes; Add Left turn pockets; Traffic signal @ EB ramps
Route 4 Improvements Willow/Sycamore	I-80 EB to Cummings Skyway	Widen to 4 lanes; Grade separation at Willow; Extend Willow to Bayberry; Acceleration lane at Sycamore; New interchange between I-80 & Cummings Skyway at Claey's Rd.
San Pablo Avenue Improvements	Westside-Linus Pauling to northern city limit	Rehabilitation and add bicycle lanes
Refugio Valley Road Reconstruction	Pheasant to Redwood	Widen to 4 lanes Add bike lanes, medians & left turn pockets Traffic signals on Refugio at Falcon/Redwood, Partridge and Pheasant
Transit Improvement Program	Sycamore/San Pablo	Transit transfer station & park & ride lot 1/2 of parcel 10 site with access off of Sycamore and San Pablo
Bayberry/Route 4 ramp improvements	At Bayberry/SR 4/I-80	Construct on-ramp to SR 4 from Bayberry Construct left turn lane from I-80EB off/SR 4 ramp to Bayberry
Sycamore Ave extension	to Claey's Rd	Construct new alignment of Sycamore to Claey's Rd
Local Access Road	South of Claey's Rd interchange	Construct local access roads (Claey's Rd) to Route 4 interchange
Palm/Sycamore intersection	Palm/Sycamore	Realign and signalize

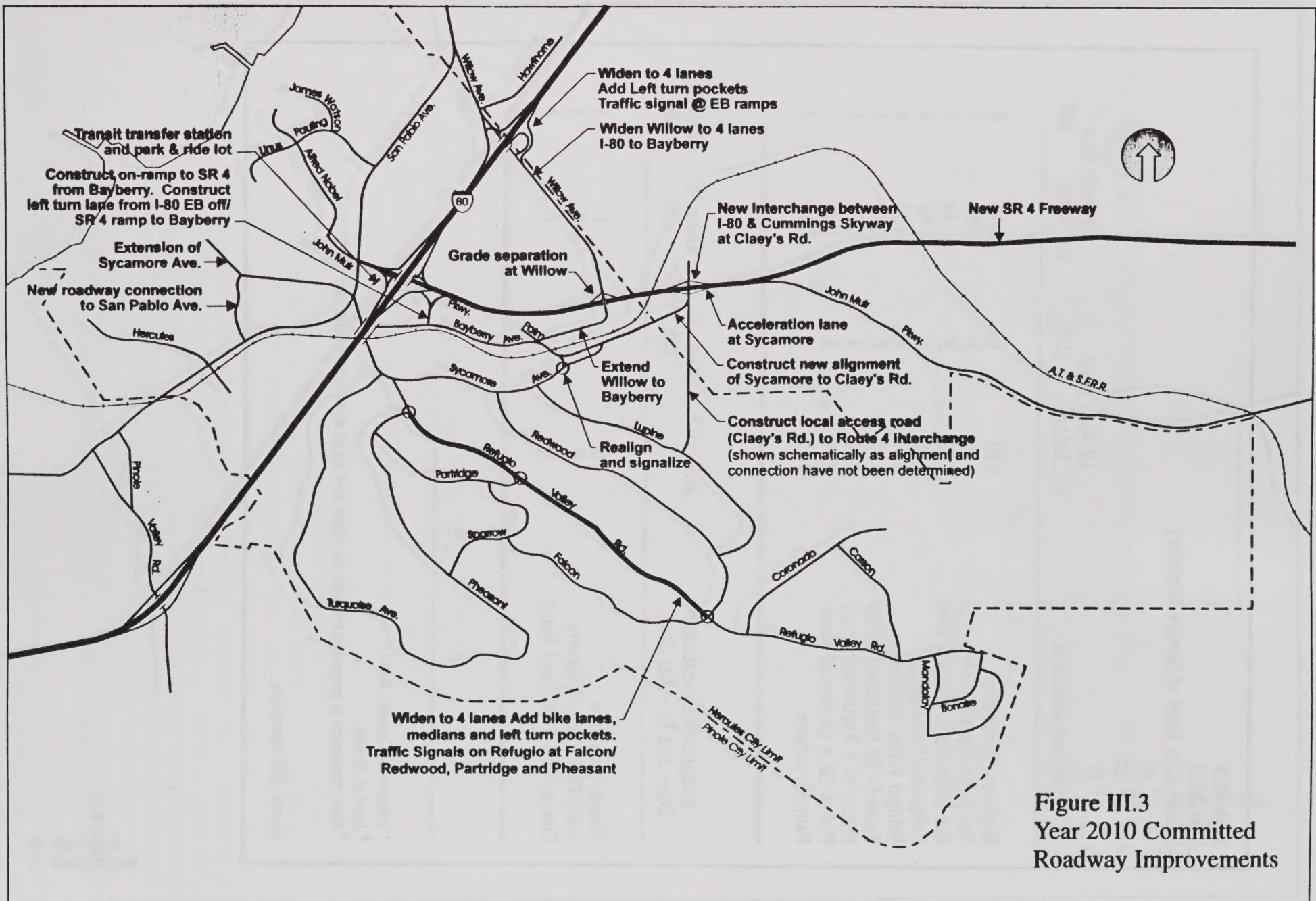


Figure III.3
Year 2010 Committed
Roadway Improvements

Table III.3
Year 2010
Intersection Level of Service Summary

Signalized Locations	AM Peak Hour		PM Peak Hour	
	V/C Ratio ¹	LOS ²	V/C Ratio	LOS
Bayberry/Sycamore	0.82	D	0.70	B
San Pablo/Sycamore	1.35	F	1.37	F
San Pablo/John Muir Parkway	1.82	F	2.49	F
Turquoise/Sycamore	0.58	A	0.50	A
Refugio Valley/Sycamore	0.57	A	0.50	A
Willow/I-80 Westbound Ramp	0.76	C	0.40	A
Willow/SR 4 Westbound Ramp	0.26	A	0.30	A
Claeys/SR 4 Eastbound Ramp	0.19	A	0.33	A
Palm/Sycamore	0.15	A	0.16	A

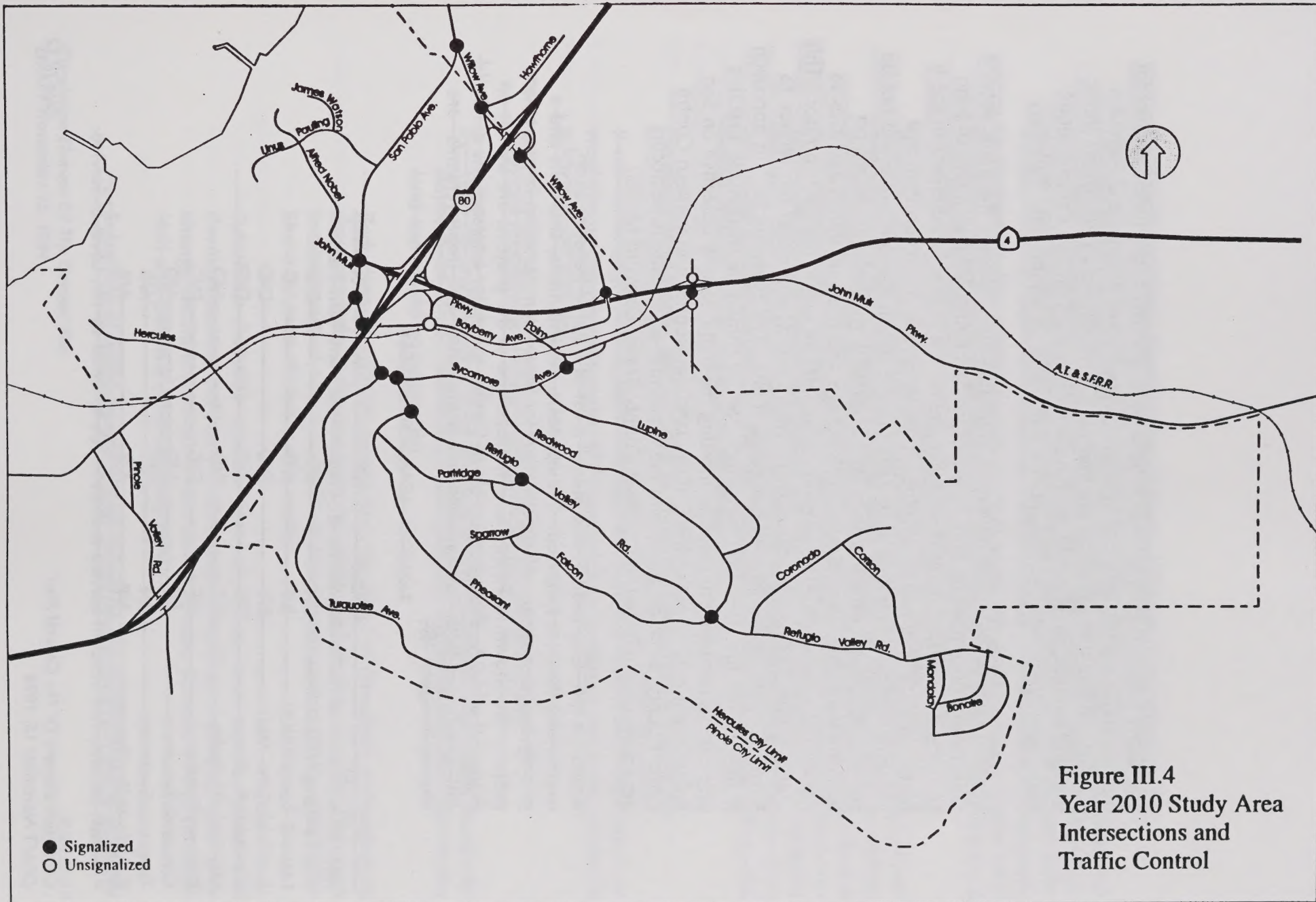
Unsignalized Locations One- and Two-Way Stop	Minor St. ³		Major St.	
	LOS	LOS	LOS	LOS
Claeys/Sycamore	D	A	F	A
I-80/SR 4 Ramp/Bayberry	B	A	C	A
Claeys/SR 4 Westbound Ramp	A	A	A	A

¹ Volume-to-Capacity Ratio.

² Level of Service.

³ Worst movement is presented for both the minor and major street approaches.

Source: DKS Associates.



The City of Hercules has already programmed a signal coordination project for the four traffic signals between Willow Avenue/Parker Avenue and Hercules Avenue. While these projects are important with respect to improving traffic flow in Hercules, they would not have a large impact on San Pablo Avenue traffic operations between Sycamore Avenue and SR 4/John Muir Parkway.

It would require significant new road infrastructure to achieve the traffic service objective of peak hour level of service E on San Pablo Avenue, south of John Muir Parkway. The City of Hercules, together with other jurisdictions in the I-80 corridor have agreed in developing the West County Action Plan that capacity improvements that encourage the use of San Pablo Avenue will not be considered. This means that the City of Hercules will focus its efforts on working with other West County jurisdictions and regional transit agencies to develop alternatives to single-occupant automobile use in the I-80 corridor. This includes pursuing BART extensions in West County, commuter rail service to Solano County, and improved bus connections. The blueprint for this approach is provided in the West County Action Plan. It should be recognized that this approach is not likely to result in meeting the traffic service objective on San Pablo Avenue (level-of-service E) if the land development in western Contra Costa County, Solano County and the remainder of the Bay Area occurs generally as anticipated in the West County Travel Demand Model.

Based on the "City-wide Traffic Study" a list of needed transportation improvements were prepared. Project costs, contributions, shortfalls and a priority based sequence of construction for these Transportation Improvement projects are shown in Table 7C. The locations of the projects are shown on Figures 9 and 9A. Projected Levels of Service for major intersections at "Build-out" conditions both "without improvements" and "with improvements" are shown in Table 7D.

TABLE 7D LEVELS OF SERVICE*

Intersection	Without Improvement	With Improvement	With Improvements and TSM Program
I-80 SB Ramp/Willow	D/E	B/B	B/B
I-80 NB Ramp/Willow	B/F	A/C	A/C
San Pablo/John Muir	F/F	D/D	D/D
San Pablo/Sycamore	F/F	D/D	D/D
San Pablo/Hercules	B/F	B/D	A/D
Bayberry/Sycamore	F/F	D/C	D/C
Creekside/Sycamore	A/F	A/D	A/D
Turquoise/Sycamore	A/E	A/B	A/B
Refugio Valley/Sycamore	A/B	A/B	A/B

*In each column, AM Level of Service is shown first, followed by PM Level of Service.

~~Critical Assumption: Construction of Route 4/Willow Area Interchange.~~

~~Perhaps the key impact assumption in modeling the City Wide Traffic Study is that an interchange will be built in the Route 4/Willow area (Project "E"). This interchange has been an integral part of the City's General Plan since the early 1970's. The City has over the years met with Caltrans on potential design and how to implement this project. Implementation of this project could experience difficulties with Caltrans' requirement of one mile spacing between interchanges and with that of funding.~~

~~Project "E": is the Traffic Mitigation Summary provides for two phase of construction. Phase 2 would extend Palm Avenue to the north and require an overpass across Route 4 which would provide access to Route 4 westbound, and to Willow Avenue. As part of this phase the Bayberry intersection (Phase 1) would be eliminated and would be reconstructed to provide an eastbound connection to Route 4. This project alone will not satisfy the needs of the traffic model in achieving a Level of Service D and would provide no advantage unless the overpass were part of the future interchange.~~

~~Possible Scenarios to Maintain LOS D if Interchange is Not Constructed.~~

~~If no interchange or overpass were built on Route 4 west of the railroad there would be a need to modify some of the assumed development in order to maintain a Level of Service "D".~~

~~Required modifications under various scenarios are as follows:~~

- ~~1. With no Transportation System Management (TSM) and no northbound I-80 Bayberry on ramp Under this condition, the following modifications to the land use would be necessary:~~
 - ~~— Reduction of 490,000 square feet (or 30%) of the office and industrial developments in the Hercules Properties/Gelsar Inc. Specific Plan area located west of I-80 and south of the already approved Bio Rad/North Shore Business Park Developments.~~
 - ~~— Substitute 340,000 square feet of office and retail commercial developments east of I-80 with 250 units of residential development. This change would impact all or part of the 25 acre site east of the new City Hall and possible other developments.~~
 - ~~— Substitute 250,000 square feet of industrial development along Bayberry~~

~~Avenue with uses such as mini warehouse or churches which generate very few peak hour trips.~~

- ~~2. No TSM program but with the Bayberry I-80 on ramp. Under this condition, the first two items of change as described above would be required. However, the industrial developments along Bayberry can be allowed to proceed.~~
- ~~3. With TSM but without the Bayberry on ramp. Under this condition, a reduction of 164,000 square feet (10%) in office and industrial developments in the Hercules Properties/Gelsar Inc.~~

~~Specific Plan area and the last two items of change, as described under Scenario 1, would be required.~~

- ~~4. With TSM and with the Bayberry I-80 on ramp. Under this condition, the industrial development along Bayberry can be allowed to proceed but other changes, described under Scenario 3, would be required. Thus, the modifications to land use would include reduction of 164,000 square feet in office and industrial developments west of I-80 and the substitution of 340,000 square feet of office and retail commercial developments east of I-80 with 250 units of residential developments.~~

~~Based on the City Wide Traffic Study, the City has concluded that an improved Route 4 interchange and additional ramps on I-80 at Willow Avenue are needed taking into consideration all of the following factors:~~

- ~~1) Through freeway traffic and freeway to freeway movements.~~
- ~~2) Service to the land uses proposed in the City's General Plan.~~
- ~~3) Traffic circulation within the City.~~
- ~~4) Distribution of traffic on City streets and freeway ramps to reduce undue congestion.~~
- ~~5) Railroad crossings and other physical constraints to street design.~~
- ~~6) Traffic signal operations.~~
- ~~7) Traffic channelization and informational signs.~~

3.5. Scenic Routes

~~The State of California adopted a state scenic program in 1963 to designate "official state scenic highways." In Contra Costa County, Routes 680, 24 and 239 are designated as scenic highways. However, there are no officially designated scenic highways in the State Master Plan within or in the vicinity of the City of Hercules.~~

~~The Contra Costa County Scenic Routes Element shows routes which contain the scenic qualities necessary to meet their goals.~~

~~The Two such scenic routes with within segments in the City of Hercules include are:~~

<u>Road Name and Category</u>	<u>Termini</u>	<u>Length to be Included</u>
State Route 4 Scenic Freeway	Interstate 80 to State Route 84	33.4 miles
San Pablo Avenue Scenic Thoroughfare	Pinole Valley Road to Interstate 80 at Crockett	6.6 miles

~~Both of these segments have been designated as City Scenic Routes (see Figure III.1). The segments of these scenic routes within the City were included for coordination purposes only. It is understood that the City's standards and criteria would be applicable to City streets.~~

~~Both of the segments of proposed County Scenic Routes in the City have been designated as City Scenic Routes (see Figure 10). San Pablo Avenue through the City of Hercules is presently a scenic corridor of relatively high environmental value and should be preserved and enhanced as the City grows and develops.~~

Although State Route 4 does not presently have an outstanding scenic quality within the City, other nearby portions of Route 4 are quite scenic (such as the Franklin Canyon Golf Course). Since Route 4 is an important window to the City, the general movement of the view from this facility is a desirable environmental goal. The City should be particularly interested in the design configuration and quality of landscaping in connection with future construction to freeway standards by the State.

6.-4. Transit

a. Existing Service

The BART system connects the City of Richmond with Fremont to the south, Concord to the east and San Francisco and Daly City across the Bay and to the south. This system is primarily a fixed rail commuter service from outlying communities to major employment centers in the Bay Region. The most accessible BART station for Hercules is the El Cerrito Del Norte station, at Cutting Boulevard and I-80 in Richmond, nine miles south of Hercules.

Public Transportation within Hercules is provided by two agencies: Western Contra Costa County Transit Authority (WestCAT) provides the local service while the Bay Area Rapid Transit (BART) is the regional carrier. Their services are as follows:

Bus service in Hercules is currently served by AC Transit and WestCAT, as well as BART Express Bus (see Figure III.5). AC Transit Route 74 runs along San Pablo Avenue between Crockett and the Richmond BART station. It operates weekdays on one-hour headways, with a stop located at the WestCAT Transit Transfer Station on John Muir Parkway just west of San Pablo Avenue. AC Transit Line 30Z travels along SR 4 from Martinez to Hercules, stopping at the WestCAT Transfer Terminal, and continuing on to the Richmond BART station. Line 30Z operates weekdays on one-hour headways.

WestCAT bus service is available throughout Hercules. Four lines operate on weekdays, and each line travels between the WestCAT Transfer Terminal and Sycamore Avenue. Line 10 runs along Turquoise Avenue, Pheasant and Sparrow. Line 12 travels along Sycamore Avenue, Redwood, Violet and Lupine. Line 13 covers Refugio Valley Road as well as Carson, Grissom and Coronado. Line 14 runs along Pheasant, Sparrow, Falcon and Refugio Valley Road west of Redwood. Each line operates on half-hour headways between 6:00 A.M. and 8:00 P.M.

WestCAT also provides door to door Dial-A-Ride service for senior and disabled passengers in portions Hercules and Rodeo not otherwise served by WestCAT. In Hercules, the Dial-A-Ride service area extends east of San Pablo Avenue and north of SR 4.

BART Express Bus Line J connects several points in northern and western Hercules with the El Cerrito Del Norte BART station. In Hercules, passengers can access the express bus at the North Shore Business Park and the Willow

Avenue/I-80 Park & Ride lots. BART Express Line J operates on 30-minute headways during the week, and 40 minute headways on Saturdays and Sundays.

Park & Ride lots currently exist at the I-80/Willow Ave ramps intersections. Approximately 99 spaces are available for commuters in these lots. Connecting service to BART Express Bus Line J is available at these lots. Another Park & Ride lot, scheduled to open in the latter part of 1994, will be located on the east side of San Pablo Avenue between Sycamore Avenue and SR 4. The San Pablo Avenue Park & Ride lot will contain about 200 spaces and will also provide parking for commuters using AC Transit Line 74 and BART Express Bus Line J.

~~1) Western Contra Costa County Transit Authority (WestCAT)~~

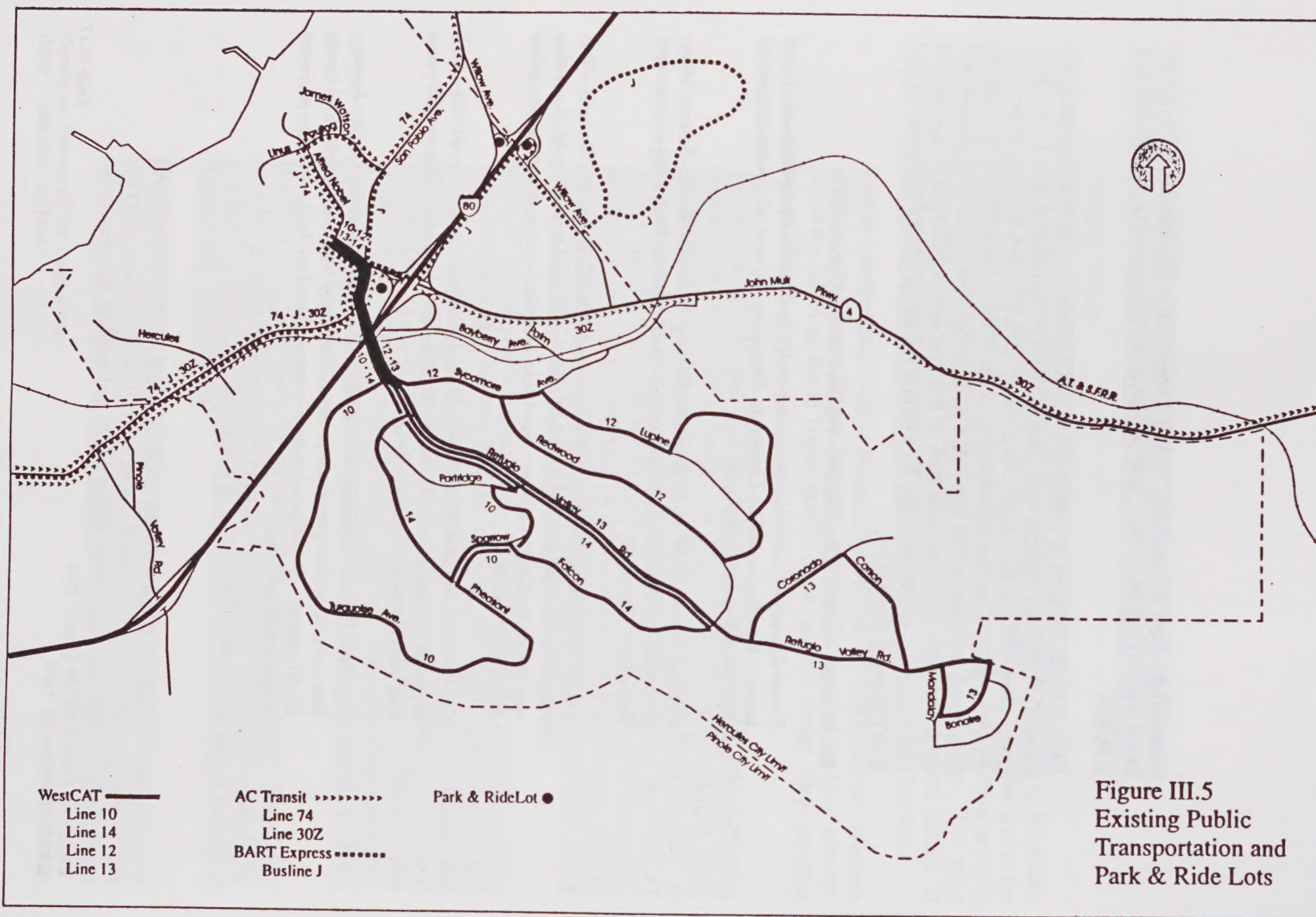
~~Fixed Routes: Route 12 serves the neighborhoods along Redwood and Lupine Roads as well as Creekside Shopping Center, Hercules Industrial Park and downtown Pinole.~~

~~Route 14 serves the neighborhoods along Pheasant Drive, Falcon Way, and Refugio Valley Road. It also serves Creekside Shopping Center and Refugio Valley Park.~~

~~Route 70A is operated, under contract to WestCAT, by AC Transit. The route operates on San Pablo Avenue from Crockett to Hilltop Mall. It also serves Contra Costa College, Brookside Hospital, and connections to other AC Transit routes.~~

~~Dial A Ride: Dial A Ride is a door to door service. It is available to all Hercules residents who live east of Highway 4 and to all elderly (60 years and older) and disabled residents.~~

~~2) Bay Area Rapid Transit District (BART): BART operates the "J" line Express Bus Service which provides direct connections to the El Cerrito Del Norte BART station. The Hercules stop is located on San Pablo Avenue just west of Sycamore Avenue.~~



~~b. Transit Potentials~~

- ~~1) Transportation System Management (TSM). There is a need to implement an active TSM program to enlist the major employers or groups of employees to create car/van pool programs and flexible work hours. In conjunction, the TSM participants should encourage the transit services to work for more routes and shorten headways.~~

~~The City Wide Traffic Study utilized in modeling a 10% reduction of work trips in zones with commercial/industrial developments and 4% reduction in work trips by residents commuting to the south. While this TSM element does not significantly modify Level of Service, every effort should be made to implement it.~~

- ~~2) Development of a "Park and Ride" facility to serve as an interface point for all public transportation.~~

~~5. Riding and Hiking Trails~~

~~A connecting system of bicycle and hiking trails are shown on the Open Space and Conservation Plan (see Figures 14 and 15). The trail system will be separated from streets and highways, where practical, connecting open spaces and activity areas in the community and linking with regional trails. Trails are classified as:~~

- ~~a. Regional riding trails~~
- ~~b. Regional hiking trails~~
- ~~c. Local trails~~

~~6. Transmission Lines and Pipelines~~

~~There are a number of existing and proposed overhead and underground facilities in the City. Figures 12 and 13 show the major facilities in their recommended locations. The facilities include:~~

- ~~a. Overhead power transmission lines (60KV and 115 KV)~~
- ~~b. Water mains and reservoirs~~
- ~~c. Sewer trunk and treatment plan~~
- ~~d. Fuel lines~~
- ~~e. Gas lines~~

7. Other Transportation Facilities

The City is traversed by two railroad lines; the Southern Pacific and the Atcheson-Topeka and Santa Fe, which is a main line. At present there is no direct water or air service to the City. The deep water channel is several miles from the shoreline at Hercules. The City is conveniently located to two international airports - Oakland and San Francisco.

C. POLICIES AND PROPOSALS

1. Objectives

The basic objectives of the Circulation and Scenic Highway Element are to:

- 1) Provide for the movement of people and commodities in the City, and
- 2) Plan for the preservation and enhancement of visual qualities as viewed from designated scenic routes. Subgoals of these basic objectives are to:
 - a. Established a long-term program for the construction of streets and preservation of future rights-of-way based on traffic projections.
 - b. Coordinate the street system with land use and other elements of the General Plan.
 - c. Unify the City with a functional internal street system of arterials, collectors, and local streets.
 - d. Provide adequate access from the freeways to the surface street system.
 - e. Coordinate the City's street system with adjoining city, county and state facilities.
 - f. Maintain acceptable local circulation operating conditions on arterial streets/intersections and on local collector streets.
 - g. Minimize through traffic in residential neighborhoods.
 - h. Promote public transit service within the City and area.
 - i. Provide a comprehensive system of riding and hiking trails.

- j. Provide for needed transmission facilities in a manner compatible with other elements of the General Plan.

2. Policies

- a. The policy on traffic level of service reflects the "traffic service objectives" set out in the *West County Action Plan* and the city's Growth Management Element adopted in 1994 to comply with Contra Costa County Measure C (1988). This included adoption of level of service standards on "basic routes" depending on the location of the route: CBD (central business district), urban, suburban, semi-rural and rural.

The following are the traffic service standards for Basic Routes (Local Streets) in Hercules:

LOS "High" D to "Low" E (maximum v/c ratio is 0.94)

- Sycamore Avenue (from Bayberry to San Pablo Avenue)
- Bayberry (from I-80 ramps to Sycamore)

LOS "High" D - (maximum v/c ratio is 0.89)

- Sycamore Avenue (SR-4 - Bayberry)
- Refugio Valley Road (Sycamore - Redwood/Falcon)
- Alfred Nobel Drive
- Linus Pauling Drive
- James Watson Drive
- John Muir Parkway

LOS "Low" D - (maximum v/c ratio is 0.84)

- All other Basic Routes (that is, except Routes of Regional Significance).

Measure C calls for "routes of regional significance" to have a separate "traffic service objective" set cooperatively by all the jurisdictions of western Contra Costa County. Routes of regional significance in Hercules are: I-80, SR 4 and San Pablo Avenue. The Circulation Draft of the West County was published on July 29, 1994, and recommends a traffic service objective of LOS E at signalized intersections on San Pablo Avenue.

~~For health, safety and general welfare, it is the City's policy to provide adequate levels of traffic service throughout the City. Level of Service D or better is the city wide standard for traffic operating conditions during peak hours on arterial streets and intersections.~~

- b. Neighborhood design should discourage through traffic on local streets.
- c. Residential streets will be designed in relation to the needed capacity and the adjoining housing patterns.
- d. Proposed elements within view of designated scenic routes in the City should be reviewed in terms of their visual impact.
- e. The City should actively participate in cooperative efforts to provide effective public transit to the City and adjacent communities, including promoting commuter rail and a train station in the City to intercept through travelers on I-80.

~~The City should actively participate in cooperative efforts to provide effective public transit to the City and adjacent communities.~~

- f. The City should promote the establishment of riding and hiking trails throughout the community and coordinate with other agencies planning trail systems in the area and region.
- g. Major transmission and fuel lines should be reviewed to ensure compatibility with affected General Plan elements.

3. Proposals and Standards

a. Traffic Circulation

The Circulation Plan (Figure III.6) shows three classifications of traffic facilities:

~~The Circulation Plan (Figures 10 and 11) shows three classifications of traffic facilities: freeways, arterials and local collector streets as well as freeway interchanges, railroads, scenic routes, and future highways.~~

1) Freeways

Freeways are routes designed to carry heavy traffic volumes over long

distances. Access is controlled, crossings are grade separated and lanes in opposite directions are separated by medians.

Interstate 80 is a six-lane freeway proposed for widening to eight lanes and State Route 4 is partly a freeway and is planned for expansion to a six-lane freeway. Figure III.6 shows the proposed interchanges of these freeways with arterial city streets.

~~Figure 9 shows the proposed interchanges of these freeways with arterial city streets.~~

2) Arterial Streets

Arterial streets provide the principal traffic circulation system within the community. They also provide the transition between collector and local streets and the freeway system. Arterials are high volume streets having two or more moving lanes and a parking lane in each direction. They sometimes have median strips and turn lanes and usually have traffic signals at major intersections. The arterial streets in Hercules are San Pablo Avenue, Willow Avenue, Sycamore Avenue and Refugio Valley Road.

3) Local Collector Streets

Local collector streets provide the transition between arterial streets and land uses within the community. The configuration of these streets will depend on the amount of traffic they will carry and the manner in which access is provided to adjoining land uses.

b. Scenic Routes

San Pablo Avenue and State Route 4 are designated as scenic routes in the City (see Figure III.6).

~~San Pablo Avenue and State Route 4 are designated as scenic routes in the City (see Figures 10 and 11). These designations are compatible with the county scenic routes proposed in Contra Costa County's preliminary draft of their Scenic Routes Element.~~

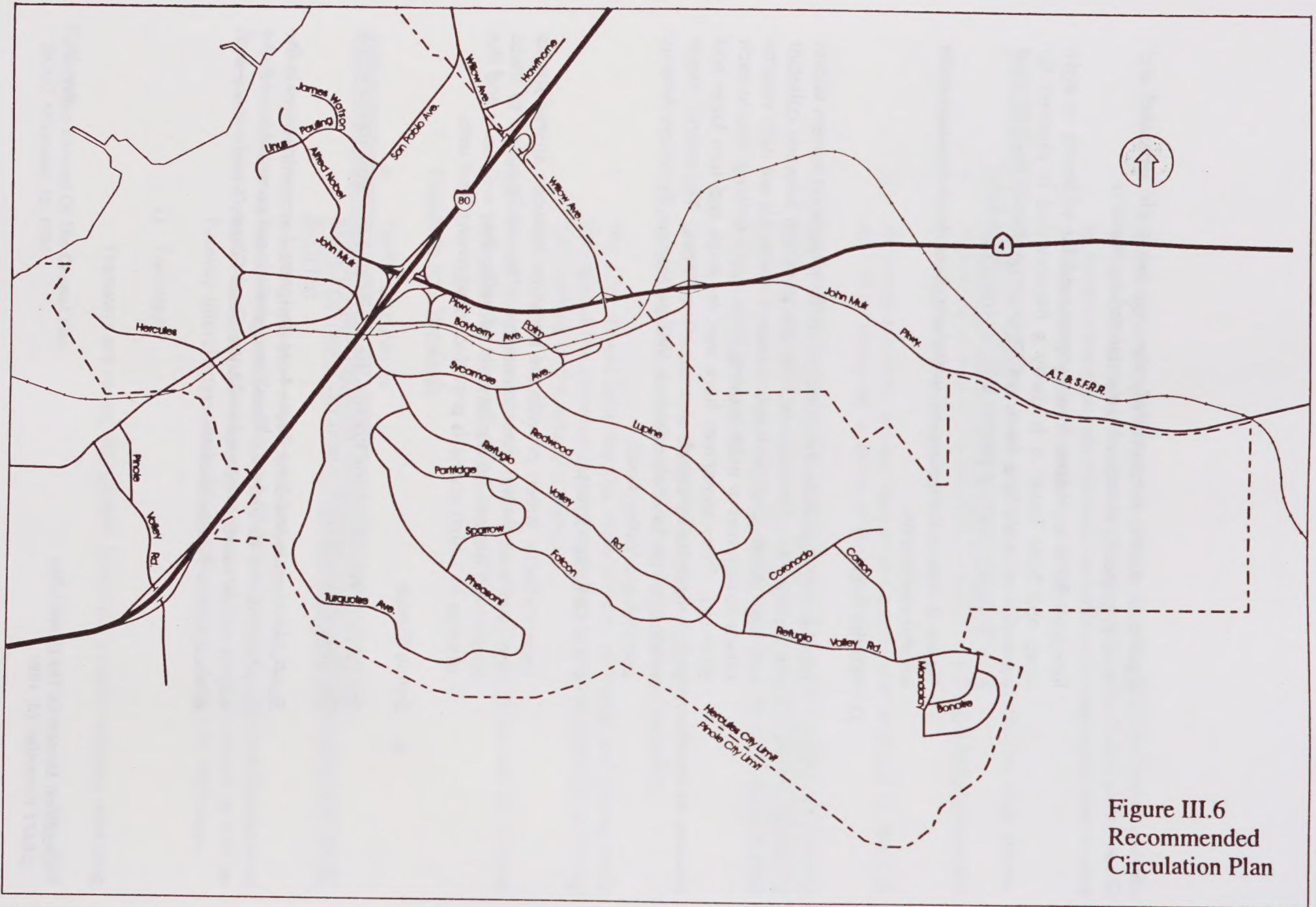


Figure III.6
Recommended
Circulation Plan

c. Transit

Convenient and efficient public transit service in the City should be provided to offer an attractive alternative to the automobile.

~~Potentials for transit service to the future residents of the City include:~~

- ~~— Create a transportation system management (TSM) program.~~
- ~~— Development of a "Park and Ride" facility to serve as an interface point for all public transportation.~~

d. ~~Riding and Hiking Trails~~

~~Three types of riding and hiking trails shown on the Open Space and Conservation Plan include:~~

- ~~1) A regional riding trail connecting the county wide trail system.~~
- ~~2) Regional hiking trails which are in general conformity to the proposed county hiking trail plan.~~
- ~~3) Local hiking trails connecting open spaces and activity areas throughout the City.~~

~~A more detailed description of the trail system can be found in the Open Space and Conservation Element.~~

e. ~~Transmission Lines and Pipelines~~

~~The existing locations for major transmission lines and pipelines are shown in Figures 12 and 13~~

~~The existing locations for major transmission lines and pipelines are shown in Figures 12 and 13~~

D. IMPLEMENTATION

1. Establishment of planning liaison with the Federal, state and regional agencies concerned with transportation to ensure the coordination of their projects with the policies of the circulation element.
2. Designation of a local select system of arterial and collector streets to be eligible for State and Highway Trust Fund monies.

3. Investigation of the use of grant funds from regional, state and Federal agencies such as the Department of Transportation, and the Department of Housing and Urban Development for the provision of specialized circulation facilities such as mass transit, hiking, biking and riding trails, and scenic highways.
4. Designation of rights-of-way in advance of development and encouragement and requirement of dedication of streets, paths and trails as part of the land development process.
5. Establishment of special assessment districts for street improvements, construction of bridges, provision of public transit or parking, etc.
6. Participation in local and regional Transportation System Management (TSM) programs, such as the City's adopted Transportation Demand Management (TDM) Program, which was developed by the West Contra Costa County Transportation Advisory Committee (WCCTAC) and includes guidelines for trip reduction measures.
7. Establish a traffic mitigation fee to be paid by all remaining development projects to offset the needed improvements outlined in the *General Plan Circulation Element Transportation Technical Report*.

~~Create a Transportation Management System (TSM) program.~~

- ~~7. Establish a traffic mitigation fee to be paid by all remaining development projects to offset the needed improvements outlined in the City Wide Traffic Study.~~
8. Acquisition of rights-of-way and easements and directly construct improvements using local sources of funds.
9. Review of development proposals in terms of circulation and scenic route policies and proposals.
10. Support area-wide cooperative efforts to expand public transit service to the City and surrounding areas.
~~Support area-wide cooperative efforts to expand public transit service to the City and surrounding areas.~~
11. Encourage pedestrian and bicycle travel for home-to-work and home-to-local-shopping trips through the provision of pathways and bicycle storage.
12. As part of road construction projects, enforce dust control measures (such as

watering graded areas daily) and require that contractors be responsible for the immediate clean-up of any materials spilled on city streets as a result of grading, construction or hauling operations.

13. Plan for construction of the road improvement projects identified in this Element through the City's Capital Improvement Program, and schedule each project according to current/projected congestion at the site of the improvement and the financial condition of the Traffic Mitigation Fund.
14. Continue programs that include:

~~Establish a short term (6 months) staff/developer program to develop a TSM program for Hercules that would include:~~

- Trip reduction goals for private and public development;
- Actions to reduce peak hour private vehicle trips (e.g. flex-time, car pools, support of transit);
- Traffic routing controls;
- Further review of alternative funding sources; and,
- An implementing and enforcement ordinance.
- Alternative financing methods for fee payment which do not put the City at risk but ease the developer impact/burden.

APPENDIX H: DRAFT DYNAMITE REDEVELOPMENT PLAN AMENDMENTS

1. Section 10, "Use Designation in the Central Plan," shall be amended to read as follows:

A. Designated Private Use

The "Designated Private Use" shall be used for the purposes of the Central and peripheral areas as shown in the Central Plan. The Project Area boundaries, including the Project Area boundaries, shall be as shown in the Central Plan. The land use to be permitted in the Project Area shall be private.

B. Designated Land Use

1. Residential Use

The area shown in the Central Plan shall be used for the purposes of the Central and peripheral areas as shown in the Central Plan. The land use to be permitted in the Project Area shall be residential use as shown in the Central Plan.

2. Commercial Use

The area shown in the Central Plan shall be used for the purposes of the Central and peripheral areas as shown in the Central Plan. The land use to be permitted in the Project Area shall be commercial use as shown in the Central Plan.

3. Industrial Use

The area shown in the Central Plan shall be used for the purposes of the Central and peripheral areas as shown in the Central Plan. The land use to be permitted in the Project Area shall be industrial use as shown in the Central Plan.

The following is an Amendment to the Redevelopment Plan for the Dynamite Redevelopment Project. This Amendment is necessary in order to bring the plan into conformance with the changes as recommended in the Land Use Update.

**PROPOSED AMENDMENT TO THE REDEVELOPMENT PLAN
FOR THE DYNAMITE REDEVELOPMENT PROJECT**

In that certain Redevelopment Plan (herein the "Plan") for the Dynamite Redevelopment Project Area (herein the "Project"), as adopted by the City Council of the City of Hercules by Ordinance No. 181 on November 30, 1983, the following amendments are made:

1. Section IV., "Uses Permitted in the Project Area", of the Plan is hereby revised to read as follows:

"A. Redevelopment Plan Map

The "Redevelopment Plan Map", attached hereto as Attachment No. 3 Revised and incorporated herein by reference, illustrates the location of the Project Area boundaries, major streets within the Project Area and the proposed land uses to be permitted in the Project for all land—public, semi-public and private.

"B. Designated Land Uses

1. Residential Uses

The areas shown on the Redevelopment Plan Map (Attachment No. 3) for residential uses shall be used for the residential uses permitted and described in the City's Zoning Ordinance, consistent with the land Use Element of the General Plan.

2. Commercial Uses

The areas shown on the Redevelopment Plan Map (Attachment No. 3) for commercial uses shall be used for the residential uses permitted and described in the City's Zoning Ordinance, consistent with the Land Use Element of the General Plan, including: Planned Commercial-Industrial; Planned Commercial-Residential; Industrial Residential and Historic Town Center

3. Industrial Uses

The areas shown on the Redevelopment Plan Map (Attachment No. 3) for industrial uses shall be used for the industrial uses permitted and described in the City's Zoning Ordinance.

4. Historic Uses

The areas shown on the Redevelopment Plan Map (Attachment No. 3) for historic uses shall be used for the historic uses set forth and described in the City's General Plan and Zoning Ordinance.

2. The Redevelopment Plan Map (Attachment No. 3) is hereby revised and replaced by Attachment No. 3, the Revised-Redevelopment Plan Map," attached hereto and incorporated herein by reference.

3. All references in the Plan to Redevelopment Plan Map (Attachment No. 3) are hereby revised to read "Attachment No. 3".

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